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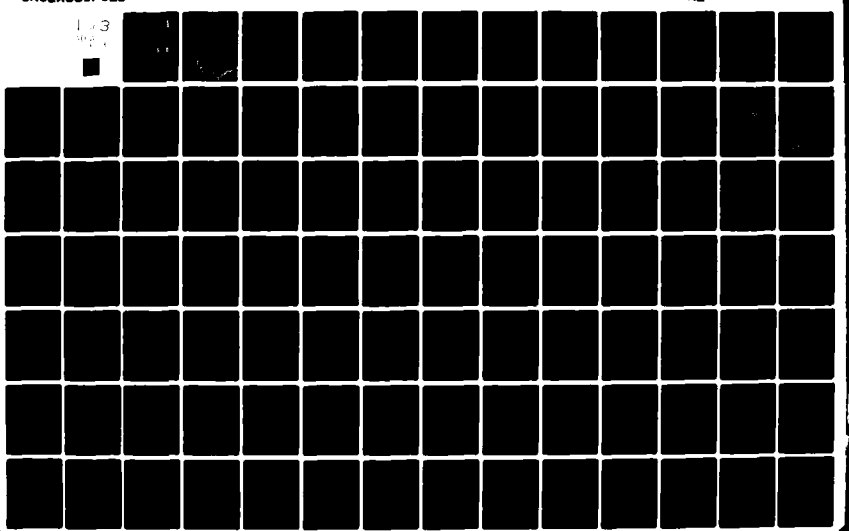

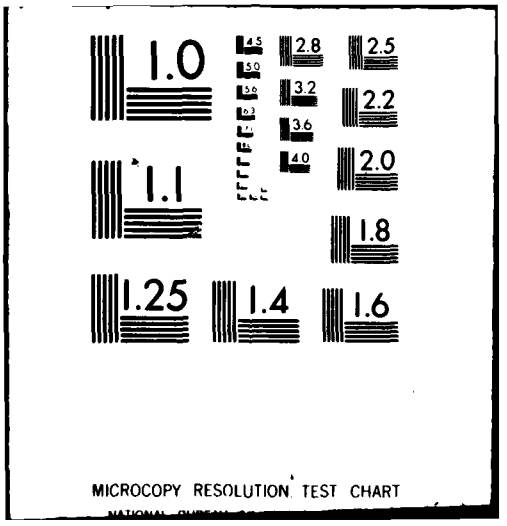
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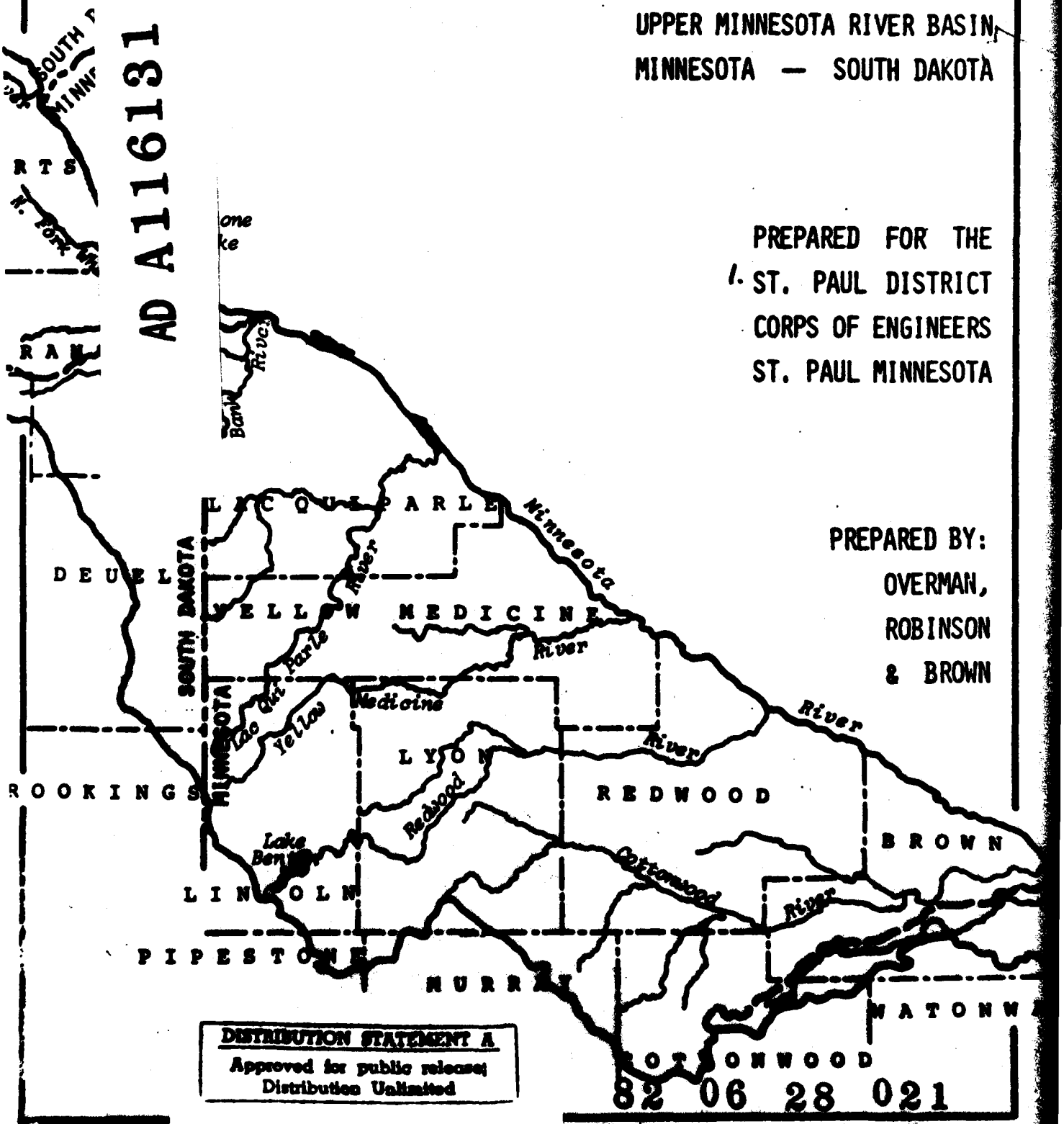
# INSTITUTIONAL ANALYSIS

FLOOD CONTROL STUDY FOR THE
UPPER MINNESOTA RIVER BASIN,
MINNESOTA — SOUTH DAKOTA



PREPARED FOR THE
ST. PAUL DISTRICT
CORPS OF ENGINEERS
ST. PAUL MINNESOTA








PREPARED BY:
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The institutional analysis contained in this report is a part of the Upper Minnesota River Subbasins study being conducted jointly by the Soil Conservation Service, Minnesota and the St. Paul District, Army Corps of Engineers. The central focus of this report analyzes the legal authorities, policies, and programs responsible for water resources and related land use planning, and existing impediments and constraints to comprehensive water resource management.

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# INSTITUTIONAL ANALYSIS

## FLOOD CONTROL STUDY FOR THE UPPER MINNESOTA RIVER BASIN MINNESOTA - SOUTH DAKOTA

Prepared for the

Department of the Army
St. Paul District Corps of Engineers
St. Paul, Minnesota

Prepared by

Overman, Robinson & Brown, Inc.
R. Allen Saville, Principal Investigator

Prepared under

Contract No. DACW37-80-C-0026

August 1980

## ABSTRACT

An Institutional Analysis
of the Upper Minnesota River Subbasin
Minnesota and South Dakota

The institutional analysis contained in this report is a required portion of the joint study of the study area undertaken by the St. Paul District of the U.S. Army Corps of Engineers and the Minnesota Office of the Soil Conservation Service. The central elements of this report are (1) a descriptive analysis of the legal authorities, policies, and programs with involvement or responsibility in water resources and related land use planning, and (2) an analysis of existing impediments and constraints to comprehensive water resource management set by the organizations and their political and legal arrangements and customs.

Conclusions about the capabilities of the existing agencies involved in the management of water resources and recommendations involving specific areas of improvement are based upon attempting to achieve a rational and comprehensive system of water resource management in the study area. Recommendations include: (1) developing more knowledge of the physical relationships between soil and water resources; (2) developing more knowledge of the incidence of costs and benefits associated with water and related land resources management projects, and (3) communication and utilization of this knowledge by the public and the agencies in the management of water resources.

# FOREWORD

This institutional analysis was accomplished as a part of the Upper Minnesota River Subbasins (P.L. 87-639) study being conducted jointly by the Soil Conservation Service, Minnesota, and the St. Paul District, Army Corps of Engineers. The 639 Study is examining water resource problems and needs in the subbasins and is formulating alternative plans to meet those needs.

As a part of the 639 Study, the Corps and Soil Conservation Service contracted with the consulting firm of Overman, Robinson and Brown, Inc., of Richmond, Virginia, to perform an analysis of the organizations involved in water resource system management in the study area. The major focus of this institutional analysis is to portray the overall water resource management system - who are the actors, what are their roles, how does the system operate, how was it intended to operate, and where do original intention and actual practice differ. This analysis reviews and critiques the water resource management system and offers system-wide recommendations concerning both the ways in which the 639 Study can best meet the needs and goals of the system, and the best means by which the system can operate to insure our ability to deliver the products and services which are ultimately recommended.

A second-phase institutional analysis will be conducted when a detailed set of alternatives is developed. This second phase will build off the system-wide analysis now completed and will focus on site-specific recommendations for maximizing the institutional feasibility of the alternative plans. The intent of the second phase will be to assure that the plans ultimately recommended will be institutionally feasible and consistent with the overall goals and structure of the water resource management system.

Mr. David J. Miller and Mr. Robert F. Post were instrumental in the development of the Scope of Work for this contract and in working with the Contractor in its accomplishment. Their work relies heavily on assistance and direction from the study co-chairmen - Mr. Stanley Kummer, Corps of Engineers, and Mr. Laurel Lappegard, Soil Conservation Service - in developing a study of value for project management, agency public involvement, development of alternatives, and social analysis.

We are pleased to present you with this Institutional Analysis of the Upper Minnesota River Subbasins, produced by the combined efforts of the consulting firm, the Soil Conservation Service, Corps personnel, and the organizations who took part.

HARRY M. MAJOR
State Conservationist
Soil Conservation Service

WILLIAM W. BADGER
Colonel, Corps of Engineers
District Engineer

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# 1. EXECUTIVE SUMMARY

The purpose of this section of the institutional analysis report is to collect and present the various points made within the report in a relatively brief summary. This section is designed to be utilized as an executive summary, but could just as well be used as a conclusion to the larger report. In order to accomplish this purpose some information presented in the larger report is, of course, repeated; on the other hand, certain conclusions presented in this section are not found in the larger report.

## 1.1 Report Overview

This institutional analysis report is divided into seven major sections.

Section 1 presents a summary of some of the major topics covered in the full report. This section is designed to serve a dual function: (1) as a summary and conclusion section to the full report, and (2) as a separable summary document. A brief assessment of the capabilities of the existing institutional system and a review of the more pronounced limitations of that system are contained in Sec. 1.

Section 2 is an introduction which covers such items as a description of the study area, definition of institutional analysis, an explanation of the authority for this study, and an identification of the general methodology and assumptions used in the development of this report.

Section 3 deals with the characteristics of the organizations that are involved with water and related land resources in the Upper Minnesota River Basin. This third section includes a listing of the institutions covered in the institutional analysis and a graphic display of some of the major characteristics

of the state, regional and local organizations. These items are accompanied by appropriate, brief, analytical observations as to the importance of these institutional characteristics.

Section 4 of the report is a review of the water resources related legislation found at the national level and within the states of Minnesota and South Dakota. The review of this legislation is organized in accordance with 11 major water resource topics, rather than a review of each of the legislative enactments as separate programs. The review is organized in this manner to show the interrelationships among many of the legislative enactments. After the general review of water resources related legislation, the implications of this legislation on the composition of a water resources planning and management system are discussed.

Section 5 of the report deals with the organizational responsibilities of the institutions included in the analysis. This section deals primarily with the functional aspects of the overall water and related land resources management system in the study area. Chief among the elements included in this section are a graphic display of the functional roles of all organizational institutions included in this analysis and analytical observations regarding the functional weaknesses of the overall system.

Section 6 entitled, "Organizational Perceptions" is a complement to Sec. 5 in that this section reports on the organizational perceptions of the major water resources issues in the study area. Also included in this section are references to the manner in which the major issues identified interface with the capabilities and deficiencies of the existing institutional system.

Section 7 is designed to stress the operational aspects of a water and related land resources management system. An overall management system model is offered as a simple paradigm to aid in the understanding of the complex operation of a water and related land resources management system. After an explanation of the operation of the paradigm in a simplistic terms, a critique of the operation of the existing system for managing water and land resources in the study area is offered. Items covered in this critique are: functional deficiencies, jurisdictional problems, and difficulties in coordination and communications. Also included in this section are comments regarding the manner in which changes in the institutional composition of the water and related land resources management system may occur.

There are several appendices which serve to amplify this report and provide information for those who may have a deeper interest in the topics covered in this report. In addition to these appendices other materials used in the research effort and the compilation of the information presented in this report are submitted with the institutional report.

## 1.2 A Water Resources Management System

As explained in Sec. 7.1, management systems engage in six basic functions which occur in a generally sequential yet overlapping progressive pattern.[1] These functions are:

1. Problem Definition
2. Data Gathering and Organization
3. Analysis
   - Forecasting
   - Evaluation criteria, etc.
4. Alternative Formulation and Assessment

[1] See Figure 7.1.

5. Alternative Selection
   - Action programs
   - Budgeting, etc.
6. Administration
   - Finance
   - Implementation
   - System development, etc.

The functions are tied together by communication and coordination links and are all parts of the three basic facets of an overall management system: (1) information and monitoring, (2) planning/design, and (3) management. In the evaluation of the institutional aspects of the water resources management system existing in the study area, a much more detailed list of water resource related functions was used.[1] Nevertheless, all functions used in the analysis are subdivisions of the three basic facets of a management system noted above.

This basic understanding of the functions related to water resources management provided the setting for the initial work of identifying the many institutions (agencies and organizations, etc.) to be considered in this institutional analysis. As work progressed in the analysis, some of the more important characteristics of these institutions were documented. The characteristics of these institutions are indicators of the existing and potential capabilities of the various agencies and organizations to perform water resource management functions. This information regarding the descriptive inventory of institutions is presented in Sec. 3. As concrete water resource management plans are developed through the overall 639 study, the information provided in this report can serve as an initial reference and as a guide for further research.

The specific water resource management responsibilities of the institutions has been developed through research and is

[1] See list of functions and institutional analysis matrix in Sec. 5 of this report.

presented in this report in Secs. 4-6.[1] The relationships among the water resource management functions and the institutions which perform them is discussed in Sec. 7 of this report. In Sec. 7 three major categories of systemwide organizational shortcomings are discussed. These three topics are: (1) the problem of appropriate jurisdiction, (2) specific functional weak points, and (3) insufficient coordination and communication. Also included in this last section is a general discussion of the possibility for change within the existing water resource management systems. Institutional change is an important concept to understand in order to facilitate the rational design of strategies to implement specific water resource management plans that may be developed later in the overall 639 Study effort.

## 1.3 Recommendations

In the various analytical sections of the full report several factors are identified that serve as requirements for a management system to plan for and manage water and related land resources in the Upper Minnesota River Basin. These management system requirements are briefly enumerated in the following paragraphs.

- A water and related land resources management system appropriate for the needs of the study area must include all areas which have the potential for incurring cost and/or receiving benefits resulting from the implementation of proposed measures for managing water and related land resources in the study area.

- This management system must include economic mechanisms and/or financial powers which can be utilized in the equitable distribution of all costs and benefits throughout the study area.

[1] A graphic display of this information is presented in the Institutional Analysis Matrix in Sec. 5 (Fig. 5.3).

- Repositories for collected data should be coordinated to the extent that those in need of water resources related information can learn where to find appropriate data with a minimum of difficulty and delay.

- Regional perspective based on the geohydrologic unit of the Upper Minnesota River Basin is more appropriate for comprehensive water and related land resource planning. This perspective must be utilized to guide and coordinate planning efforts at all levels of government.

- Given the fact that the appropriate resources exist within the present management system, it would be efficient to coordinate the existing agencies to provide highly qualified technical staff support to an agency charged with developing a comprehensive water and related land resources management plan for the entire geohydrologic unit of the Upper Minnesota River Basin. To increase the chances of subsequent political acceptance and implementation of this plan, the interests of both state governments and all counties within the study area must be represented in this planning agency.

- The water and related land resources planning activities of the states of Minnesota and South Dakota should be coordinated to the extent of their consideration of the study area which includes portions of both states.

- The development of different plans by different agencies at the same governmental level (especially the state level in Minnesota) for the use of

the same resources should be reduced to the maximum extent possible. The incorporation of differing viewpoints in a single plan is a much more efficient use of staff resources.

- The governmental agencies which have the capabilities to assume a lead role in the development of comprehensive regional water resources planning are not the same agencies with the most significant revenue generating and appropriation powers. The plans developed by agencies participating (or those that will participate) in regional comprehensive water resource planning can be improved greatly by financial planning input from agencies with revenue generating and appropriation powers. This relationship must be achieved through cooperation among agencies at several levels of government within the study area.

- A water and related land resources management system that would suit the needs of the study area must have the following types of capabilities.

  1. Collecting all types of environmentally related information, analyzing this information and considering it in the decision-making process in order to comply with NEPA and environmental assessment/impact statement regulations usually associated with major projects.

  2. Developing more knowledge on the physical relationships between soil and water (both ground and surface waters) resources, especially those surrounding the drainage versus wetlands issues in the study area.

  3. Evaluating the specific environmental concerns related to fish and wildlife habitat and pollution control resulting from water and related land resources management decisions in the study area.

4. Assessing the compatibility of flood control measures with overall beneficial uses of water and soil resources within the study area.

5. Comparing costs and benefits associated with various types of flood control measures.

6. Designing and implementing economic mechanisms and financing systems that will facilitate the equitable distribution of the incidence of costs and benefits associated with water and related land resources management projects designed to resolve systemwide water resource related problems in the study area.

7. Designing, implementing and maintaining a series of public education programs concerning the management of water and soil resources stressing the following topics: (1) long-term economic benefits and costs associated with various flood control and water and soil resource management programs, (2) maintaining long-term productivity of the land, and (3) concepts regarding the mechanisms for distribution and incidence of costs and benefits associated with water resource projects.

8. Implementing non-structural alternatives for flood damage reduction in the study area.

9. Keeping track of the availability of funds from the various state and federal sources which may be utilized in the financing of water resource related projects in the study area.

The above-listed requirements for a water and related land resource management system in the study area are those which address weak points or missing links in the existing system. Other requirements for a water and related land resource system can be found in the present institutional melange that serves the study area. There are two other suggested actions that would greatly benefit the operation of the existing and future water and related land resources management system for the study area. These two actions are and perhaps should be, beyond the powers of the system to accomplish. Federal and/or state expertise should be allocated to assisting regional interests in complying with

NEPA and state policy directive regarding the development of methods of quantifying the long-term economic costs and benefits associated with water resource related projects, especially those in relation to environmental concerns. The second suggested action is for state level agencies to review the existing laws and judicial decisions regarding drainage with the consideration of resolving potential conflicts with other programmatic objectives which are related to water resources and reflected in the state laws.

## 1.4 Existing Institutional Capabilities

Many times first impressions can be misleading; other times first impressions prove to be more accurate. One of the first impressions on the researchers involved with this project was that there is a considerable amount of good quality water resource related planning being conducted by many agencies involved with the study area. This has been a lasting impression. The fact that much of this planning is not beneficially used stems from a lack of coordination which has been adequately covered in this and other reports.

The technical capabilities related to the physical sciences that exist within the present collection of agencies involved in the study area are impressive. At the level of the state agencies in both states, there are many highly qualified technical persons with the knowledge, experience, and familiarity with the geohydrological relationships in the study area. It would be easy to find a nucleus of persons capable of resolving some of the most difficult physical water resource problems in the study area.

The information which has been developed, organized, and is available through various data repositories at the level of state and federal agencies is also impressive. All of the generally required planning statistics are developed

and updated on a regular basis. Information concerning the physical system in the study area is also fairly well developed. There does seem to be a slight deficiency in the information available on groundwater resources in the study area, but this deficiency is presently being rectified. There is extensive information available on agricultural techniques and soil and water conservation methods through the university systems, the extension services, the soil and water conservation districts, the Soil Conservation Service, and numerous other state and federal agencies. In general, there seems to be an adequate amount of information to support all planning/design and decision-making activities regarding the physical aspects of the water and related land resources system in the study area.

The basic legislative policy and legal tools are available that would enable governmental and quasigovernmental agencies at all levels to participate in joint activities. The appropriate agencies seem to have taxing and other financial powers. For the most part, allocative decisions are made by agencies which are responsible to the people. All in all, the existing system seems to contain most of the elements required for effective water and related land resources management.

## 1.5 Limitations of the Existing System

The major problem highlighted frequently in this and other reports is the lack of coordination. Since this lack of coordination has been attributed to the existing system by many previous reports as well as this report, it may be conjectured that the system suffers from a lack of an overall concept on which to base a coordinated approach. Achieving extensive coordination among the various functions and agencies throughout the local, regional and state levels of

government is not an easy task. The proper division of functional responsibilities, the elimination of overlapping and duplication, and insuring that all necessary functions are properly performed is a task equal to the most organized mind. In order to achieve meaningful results in this task, it is necessary to develop a concept of organization which relates to the major functional tasks which face the entire governmental organization.

It is suggested that in the case of the management of water and related land resources, the appropriate planning unit for the effective and equitable resolution of water resource problems is the geohydrologic unit. This is not to say that water resource planning and management in each geohydrologic unit should be autonomous; the water resource related interests and problems in the geohydrologic units must be weighed in the balance with numerous other problems and interests occurring at various levels of the governmental hierarchy. The geohydrologic unit, however, does offer a sound concept on which to base the efforts toward coordinating the various water resource related activities at several levels of government. Using this basis for coordination, it may be possible to meet the system requirements summarized in this section for the needs of coordination and communication among governmental agencies at all levels.

Perhaps the next most serious limitation of the existing system involves the lack of effective use of economic mechanisms and financial systems to assist in accomplishing the effective management of water and related land resources in the study area. In several portions of the full report, the requirements for using economic cost-benefit analyses that reflect not only the short-term costs and benefits, but also the long-term costs and benefits are reviewed. Also discussed in the full report are some of the more pronounced

deficiencies in the present "state of the art" of economic cost-benefit analysis procedures. The deficiencies in the present cost-benefit analysis procedures understandably seem to be more pronounced in the area of assessing and adequately accounting for the long-term costs and benefits and those costs and benefits associated with environmental concerns which are at this point hard to quantify. Also a stumbling block to effective water resource planning and management is a general lack of information about and understanding of the existing economic mechanisms and financial powers that may have potential use in the distribution of the costs and benefits of implementing the various types of water resource projects currently under consideration. This deficiency is manifested in the information and monitoring, plannning/design, and management aspects of the existing water and related land use management system within the study area. It is suggested that some fairly sophisticated types of analysis regarding the potential uses of existing economic mechanisms and financial powers as vehicles for the equitable distribution of the incidence of costs and benefits of water resource projects will have to occur before this aspect of the management system is included in water resource planning. Perhaps the needed sophisticated analysis can be developed at the higher state and federal levels to support the general need for knowledge at the regional and local planning levels.

Given the fact that there is a lack of communication and coordination within the system and that the system does not yet have the capability of utilizing economic mechanisms and financial powers to equitably distribute the costs and benefits of water resource related projects within the study, the system would be hardpressed to successfully implement a comprehensive set of water resource projects in any but an arbitrary manner. Development of the coordination and

communication linkages and understanding and effective utilization of economic mechanisms and financial powers will greatly contribute to the capabilities of the existing system to implement comprehensive water resource programs. There are, however, two other elements necessary for the implementation of comprehensive water resource programs. The first element which is covered in the full report is the need for effective public education programs relating water resource issues in the study area. Since local governmental units are to represent the people in those localities, the understanding and cooperation of local people is an essential ingredient in obtaining the cooperation and participation of the local governmental units in regional water and related land resources management. Many of the legislative enactments, especially those at the federal level, have included public participation programs as a required element of developing plans for and implementing major water resource projects. These public participation requirements have been included for at least two reasons: (1) to ensure that views of the local public are considered in the development of the plans, and (2) to increase the chances of ultimate implementation of the project. Public participation is indeed a valuable element in achieving these two objectives. However, informed public participation is even more desirable. In order for the public to participate in an informed manner, the public must be knowledgeable about the major issues included in the projects and programs which are being considered and developed. Developing the information on the major issues is only one part of effective public education. The other essential ingredient, sometimes omitted, is the effective communication of this information to the public. The analysis conducted in this project indicates that the present institutional system is weak in its ability to successfully undertake effective public programs. It is suggested that the major component missing in the existing

system with regard to an effective public education program is not the local information distribution system; there are several agencies and other formal and informal groups which could be used as parts of an information distribution system. The major missing link seems to be the commitment to effective public education programs at the higher state and federal levels. It is recognized that effective public education programs are not inexpensive. It is, however, suggested that there is a greater need for these programs in this particular study area than presently appreciated.

# 2. BACKGROUND/METHODOLOGICAL OVERVIEW

In this section two themes are developed. The first theme, covered in subsecs. 2.1 - 2.4, is that of the general background for the study. The nature of the study area and the purpose and nature of this specific study are topics which contribute to the development of this first theme. The second theme treated in this section is an overview of the general methodology used in this institutional analysis project.

## 2.1 The Study Area

The study area encompasses the drainage areas of the principal tributaries on the southwest side of the upper Minnesota River. The study is defined by the drainage basins of the Yellow Bank, Lac Qui Parle, Yellow Medicine, Redwood and Cottonwood Rivers. Since the study area is defined by hydrologic units, the geographical area includes or cuts across a variety of political boundaries. All or parts of thirteen counties are in the study area. Nine of these counties are in the State of Minnesota and four are in South Dakota. In addition, there are other substate and multistate regional organizations of which the study is a part.

Aside from the riverine system of streams and rivers of various sizes, the feature with the most significant impact on the way in which the hydrology of the study area works is the Coteau des Prairies. About one-third of the land area in the study area lies above and along the relatively steep slopes of the Coteau which defines the southern, southwestern and western boundaries of the study area. The remaining two-thirds of the area is relatively flat, and for the most part, intensively utilized by an agressive agricultural community. A location map is provided as Figure 1.

Figure 1

INSTITUTIONAL
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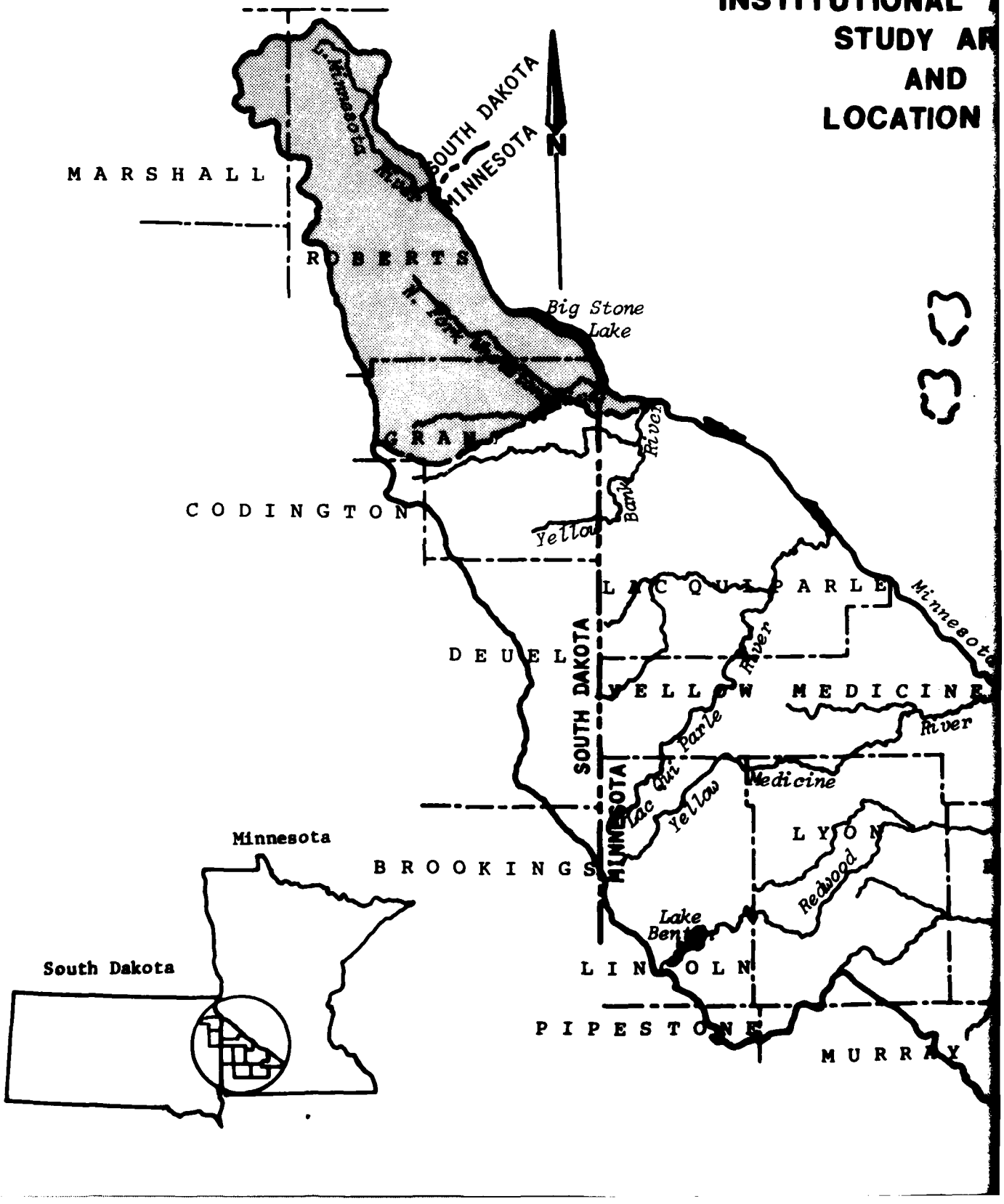


Figure 1

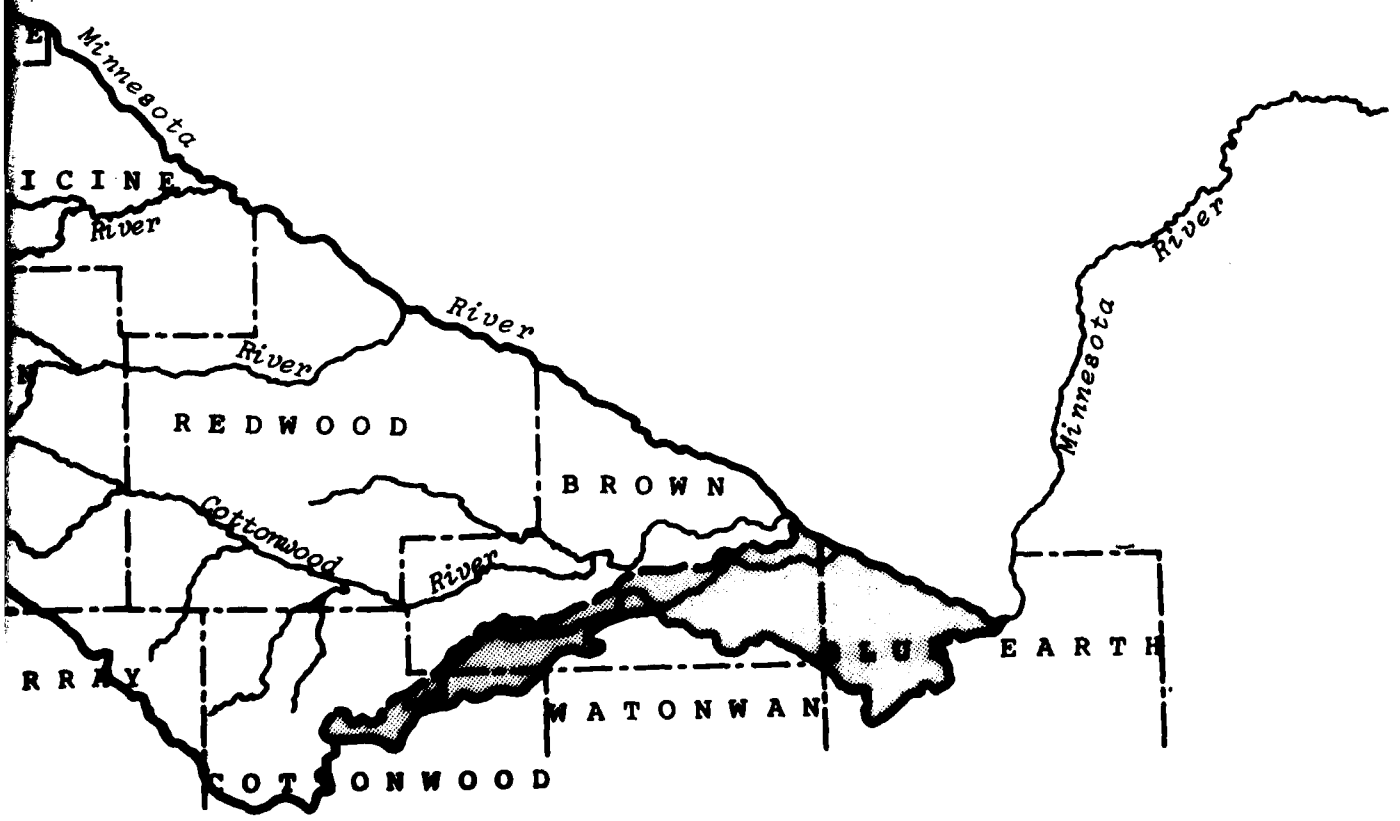
# ONAL ANALYSIS
# UDY AREA
# AND
# CATION MAP

**BASE LEGEND**

- BASIN BOUNDARY
- STATE BOUNDARY
- COUNTY BOUNDARY
- DRAINAGE
- LAKE

**LEGEND**

- INSTITUTIONAL ANALYSIS STUDY AREA
- AREA WITHIN THE BASIN BOUNDARY NOT INCLUDED IN THE INSTITUTIONAL ANALYSIS

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The study area is part of a natural prairie area. The largest influence on the formation of the topographical features of the area seems to have been the land moving actions which occurred during the glacial period. The Minnesota River has its origins in a much larger river of the glacial period named the Glacial River Warren. The composition of the soil and a significant portion of the subsurface geological characteristics of the study area were in large measure determined by the "glacial drift" left in this area by the retreating glaciers.

The flat, treeless land of this area remains attractive to farmers. The climate in the area yields a growing season ranging from 130 to 155 days which is relatively short compared to the national average, but is very adequate under most normal circumstances. The rainfall in the study area is just enough for the crops typically grown; approximately seventy percent of the rainfall occurs during the growing season. With the exception of the cyclical extremes, the amount of rainfall is usually adequate and not a worrisome factor. There is one aspect of the rainfall in the study area which does create frequent problems. A significant amount of rain all at one time can, because of the topography and a complex set of other interrelated factors, create widespread flood problems in the lower, flatter portions of the study area. An oversimplified view is that the flooding is caused by the combination of heavy rains over a wide area and the resulting run off from the Coteau and its steep slopes onto the flat portions of the study area. The flooding typically begins at the base of the Coteau. The heavy run off does not stay confined in the streams and five tributary rivers to be carried to the Minnesota River. Instead, after the waters reach the base of the Coteau, they frequently proceed in a direction generally paralleling the Minnesota River moving across valuable crop land causing extensive erosion and crop damage.

moving across valuable crop land causing extensive erosion and crop damage.

There are other significant factors which contribute to erosion and crop damage: for example, wind erosion and drought. The importance of dealing with these other factors is recognized, but flooding is the reason that the "639 Study" was authorized, and flooding and the broader issues of water resources planning and management are the central issues with which this particular report is concerned.

## 2.2 Authority for the Study

While the following enabling legislation obtained from Congressional records states the legal authorization through P.L. 87-639 for the institutional analysis, the ensuing discussion expresses the Corps interpretation of their authority.

FLOOD CONTROL--INVESTIGATIONS AND SURVEYS

PUBLIC LAW 87-639; 76 STAT. 438

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That:*

The Secretary of the Army and the Secretary of Agriculture, when authorized to do so by resolutions adopted by the Committee on Public Works of the Senate of the Committee on Public Works of the House of Representatives,[1] are hereby authorized and directed to make joint investigations and surveys in accordance with their existing authorities of watershed areas in the United States, Puerto Rico, and the Virgin Islands, and to prepare joint reports on such investigations and surveys setting forth their recommendations for the installation of the works of improvement needed for flood prevention or the conservation, development, utilization, and disposal of water, and for flood control and allied purposes. Such joint reports shall be submitted to the Congress through the President for adoption and authorization by the Congress of the recommended works of improvement: *Provided*, That the project authorization

[1]Specific study authorization cited in Alternative Report Extract, pg. 1, under "Authority".

procedure established by Public Law 566, Eighty-third Congress, as amended, shall be affected.

Sec. 2. There are hereby authorized to be appropriated such sums as may be necessary to carry out the purposes of this Act, such sums to remain available until expended.

Approved September 5, 1962.

## FLOOD CONTROL--INVESTIGATIONS AND SURVEYS
## (Legislative History of Act)

Senate Report No. 1910, Aug. 23, 1962 (to accompany H.R. 3801)
House Report No. 1083, Aug. 30, 1961 (to accompany H.R. 3901)
The Senate Report is set out.

### Senate Report No. 1910

The Committee on Public Works, to whom was referred the bill (H.R. 3901) to authorize the Secretary of the Army and the Secretary of Agriculture to make joint investigations and surveys of watershed areas for flood prevention or the conservation, development, utilization, and disposal of water, and for flood control and allied purposes, and to prepare joint reports on such investigations and surveys for submission to the Congress, and for other purposes, having considered the same, report favorably thereon without amendment, and recommend that the bill do pass.

### Purpose of the Bill

The purpose of H.R. 3801 is to authorize and direct the Secretary of the Army and the Secretary of Agriculture, when called upon to do so by resolutions of the Committees on Public Works of the Senate or House of Representatives, to make joint investigations and surveys on river basins and watershed areas, and to prepare joint reports, setting forth their recommendations for works of improvement for flood prevention or the conservation, development, utilization, and disposal of water, and for flood control and allied purposes. The joint reports would be submitted to the Congress through the President for consideration of authorization by the Congress of the recommended works of improvement, without affecting the project authorization established by Public Law 566, 83rd Congress, as amended. It would authorize the appropriation of such sums as may be necessary to carry out the purposes of the act, such sums to remain available until expended.

### General Statement

In carrying out the flood-control program of the Corps of Engineers and the watershed protection and flood prevention

program of the Soil Conservation Service, Department of Agriculture, those agencies now coordinate their efforts at field level when their reports are in the process of preparation. Adjustments are often made by each agency to adapt its plans to meet the plans of the other. When reports are completed by each agency, they are reviewed by the other and comments submitted on the relationship between the programs of the two agencies. These agencies also coordinate their activities in this respect with other agencies of the Federal Government, the States, and local agencies.

H.R. 3801 would provide the necessary authority and direction to permit the Corps of Engineers and the Soil Conservation Service to proceed concurrently in carrying out certain of their investigations, surveys, planning, and development of programs; and to prepare concurrent or joint reports for consideration of the Congress. This procedure in coordination of planning by all concerned will insure optimum results in the conservation, development, and use of the water and related land resources in many of the river basins and watersheds of the Nation.

The Flood Control Act of 1936, and subsequent acts, authorized preliminary examinations and surveys for flood control at certain localities to be prosecuted by the Secretary of the Army, and similar investigations for runoff and waterflow retardation and soil erosion prevention on the watersheds of the same localities, to be prosecuted by the Secretary of Agriculture. Under those authorizations, many survey reports have been prepared by each of those departments, but they were not prepared concurrently, and the early reports were not fully coordinated.

Committee Views

The committee believes that it would be desirable in many instances to have authority available that would permit the Corps of Engineers and the Soil Conservation Service to proceed concurrently with investigations leading to concurrent or joint reports for consideration of the Congress, provided that such procedure does not interfere with established procedure or slow the completion and submission of other authorized surveys or investigations. The committee is of the opinion that the coordination of planning by all concerned, particularly on smaller watersheds, is essential and will provide many benefits in our programs for resource development.

UPPER MINNESOTA RIVER SUBBASINS STUDY
(Public Law 87-639)

STAGE I REPORT
ALTERNATIVES

## Authority

The Governor of Minnesota asked Congress to authorize the Corps of Engineers (Corps) and the Soil Conservation Service (SCS) under Public Law 87-639 to conduct an implementation study for the area. The following resolution authorizing the study was passed by Congress in December 1975.

> "Resolved by the Committee on Public Works and Transportation of the House of Representatives, United States, that the Secretary of the Army and the Secretary of Agriculture are hereby authorized and directed to make joint investigations and surveys, as provided by Public Law 87-639, of the Redwood, Cottonwood, Yellow Medicine, Lac Qui Parle, and Yellow Bank Rivers' subbasins of the Minnesota River Basin and to prepare reports on such investigations and surveys setting forth their recommendations for the installation of works of improvement needed for flood prevention or the conservation, development, utilization and disposal of water, and for flood control and allied purposes. Such joint reports shall be prepared and submitted in compliance with the provisions of the public law cited herein."

## Interpretation of the Authority by the SCS & Corps

The emphasis in studies of water and related land resources is on flood control within existing rules, regulations, and policies governing the work of each agency. The joint reports to Congress shall include a water and related land resources plan recommended for implementation. Responsibility for implementation will be determined as part of the study process. The plan shall be accompanied by an environmental impact statement (EIS) and be in sufficient detail to permit its implementation. As mutually agreed by SCS and the Corps of Engineers, the report and EIS will be forwarded to Congress through appropriate channels after technical, public, and interagency review is completed in accordance with the Corps of Engineers policy concerning technical and public review. Implementation of the Federal elements of these plans is contingent on congressional action.

The legislation and study authorities presented above depict the relationships of the two agencies in PL 87-639 actions, in general, and the Upper Minnesota River Subbasins study, in particular. Several additional legislative and Executive directives of primary importance in guiding the study also exist. These directives present the methods by which federal agencies should conduct their planning activities, and include: the National Environmental Policy Act (NEPA) of 1969 (and subsequent revisions and amendments by the Council on Environmental Quality); and the Water Resources Council (WRC), Water and Related Land Resources, Establishment of Principles and Standards for Planning (P&S), 1973, (and subsequent revisions and amendments by WRC). These two directives form the basis for all major federal planning process and environmental review requirements. As such, each agency has developed their own implementing regulations to insure compliance with these national policy guidelines. As regards this study, a management decision was made by the agencies that sufficient documentation be provided to show compliance with both sets of agency regulations. Should conflicts in application of the differing regulations arise, each agency would be ultimately responsible for fulfilling their own requirements for those components of the selected plan which they would implement.

The designated operational offices for this study are the St. Paul District, Corps of Engineers and the Minnesota Office of the Soil Conservation Service. Corps of Engineer Districts are organized along major watersheds; therefore, all of the study area lies within the designated boundaries of the St. Paul District. Since SCS field offices are organized according to state political boundaries, however, the South Dakota portions of the study area would normally fall within the purview of the South Dakota SCS office. Because the

vast majority of the study area lies with Minnesota, the Minnesota SCS office has assumed responsibility for the South Dakota area as well in this particular study. The South Dakota SCS offices will participate in the study principally through the Area and District Conservationist Offices in South Dakota.

## 2.3 Purpose of Institutional Analysis Study

The total "639 Study" effort is divided into a number of study elements. This specific work product is only one of those elements. The 639 study involves both water and related land resources. The water and related land resources plan ultimately submitted to Congress as a part of the joint reports will identify the responsibilities for implementation of the various aspects of the plan. This specific work product, entitled, "An Institutional Analysis of the Upper Minnesota River Subbasin, Minnesota and South Dakota", has been conducted to identify the potential of the various agencies in the study area to assume responsibilities for implementation of the various aspects of the plan. It must be stressed, however, that this institutional analysis has been conducted at a time prior to the formulation of the water and related land resource plan for the study area. There are several reasons for conducting the institutional analysis prior to the formulation of the water and related land resource plan. A major reason is for the institutional analysis to serve as a type of feasibility study which may indicate the inadvisability, impracticality, or at the very least, difficulty involved with certain types of flood control measures, both structural and nonstructural control measures. The information regarding the feasibility of certain types of flood control measures can then be utilized to select the more promising alternatives for further study, thereby accomplishing a savings by eliminating institutionally infeasible alternatives from further consideration.

Another major reason for conducting an institutional analysis early in the 639 Study is to identify components of the institutional system which may need further development. For the purposes of this study, the institutional system is composed mainly of the various agencies and organizations that have responsibilities in the planning and management of the

water and related land resources in the study area. Some of these agencies and organizations have the responsibility of developing alternative flood control measures. The success of many flood control measures depends on the powers of sponsoring agencies to implement them and see to their proper maintenance. Sometimes the powers and/or capabilities of a set of agencies that would collectively have total responsibility for a particular flood control alternative are not really commensurate with those necessary to fully carry out the alternative under consideration. One of the features of institutional analysis is that the capabilities of agencies and organizations are documented and analyzed. With the information provided in an institutional analysis, it may often be possible not only to identify deficiencies in the capabilities that agencies, etc., would need to implement certain flood control measures, but also to design methods for improving the capabilities of agencies, etc., to the point required to fully implement those flood control measures. In this manner it may be possible to design and carry out a plan to improve the "institutional capabilities" of a given set of agencies and/or organizations so that a certain flood control alternative can be employed. It is many times the case that the more comprehensive flood control alternatives are those beyond the existing capabilities of agencies and organizations and are those which can be facilitated by improvements in the capabilities of these same agencies and organizations. Many times this type of improvement in the capabilities of institutions is easier, less costly, and can be accomplished more quickly than using the flood control alternatives (both structural and nonstructural) that are feasible under the present institutional system.

## 2.4 Definition of Institutional Analysis

In order to expand understanding of the manner in which institutional analysis can be used to accomplish the purposes

discussed in the following subsection, and in order for further introduce the discussion contained in the balance of this report, a definition of institutional analysis if offered.

Institutional analysis involves the detailed examination of institutions in order to discover their nature, proportions, functions and relationships. The institutions which are the subject of the analysis include "not only the organizational institutions such as governmental agencies and departments, etc., but also non-organizational institutions such as a particular statutory enactment, governmental program or policy, and even a strong social custom or tradition that influences a particular situation."[1]

The analysis involved in institutional analysis is usually accomplished by the separation of the whole into its fundamental parts; the institutions and/or institutional networks are conceptually separated into components (perhaps on a functional basis) for a detailed examination.[2] An institutional analysis can range from a cursory review to an extremely lengthy and detailed study.[3] The types of institutions included in the study may well be determined by the nature of the consideration and/or the time and resources available for

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[1] R. Allen Saville, "The Role of Institutional Analysis in the Regional Planning Process," May 1980 Draft of Unpublished Doctoral Dissertation, Doctor of Environmental Design and Planning, Virginia Polytechnic Institute and State University, 1980, pg. 115.

[2] The topic of concern in this particular instance of institutional analysis is water resources planning and management in the Upper Minnesota River Basin with particular attention applied to flood problems.

[3] For a technical definition of institutional analysis, see pg. C-5 of this report.

the project. In any case, the definition indicates that the types of institutions that may be subject to study can include anything from the formal and highly visible organizational institutions, such as major governmental agencies, to the most discrete (yet identifiable) evidences of collective human behavior (usually non-organizational) that might have an influence on the topic of concern. There may well be both organizational and non-organizational types of institutions that are extremely important in any given topic of concern. For this reason, if a particular institutional analysis must be limited in scope because of time or available resources, it is not advisable to limit the analysis by limiting the types of institutions to be considered (i.e., organizational or non-organizational). Rather, it is more advisable to use some criterion, or set of criteria, concerning the extent of impact that institutions have on the topic of consideration in order to limit the scope of the institutional analysis where time and/or available resources dictate.

The last feature of institutional analysis that warrants explanation is that some type of evaluation is involved in determining the selection of the analysis techniques. The nature of the evaluation to be accomplished in the institutional analysis serves as a criterion for the selection of the analysis techniques. For example, the purpose of this particular institutional analysis is to assess the general capabilities of existing institutions to implement a rather broad range of flood control alternatives. A responsive institutional analysis must document (record) capabilities of the existing institutions which would be used for implementation in terms of legal authority, political jurisdiction, financial strength, and other factors. In order to evaluate these institutional capabilities, appropriate analysis techniques must be selected from those which have been previously developed and cataloged, or new techniques of analysis more appropriate to the type of evaluation required must be developed.

It is possible that an institutional analysis could be conducted merely to identify and document the nature, and proportion of each institution related to a topic of concern. This type of analysis would not be considered an evaluation, nor would it meet the definition of analysis either. This type of activity would more appropriately be called an institutional inventory. The real analysis comes when the functioning of, and relationships among, those institutions (as related to a specific topic) are scrutinized. A description of the nature and proportion of institutions may be very informative, but is sterile apart from a consideration of the functions of the institutions and the relationships among the institutions.[1]

## 2.5 General Methodology and Assumptions

The methodological approach utilized in development of this institutional report can be separated into four simple phases: (1) definition of the problem, (2) development of information, (3) analysis of the information, and (4) development of a final report. The scope of work and several preliminary discussions between the Corps of Engineers and consultants sufficiently defined the topics to be covered in this institutional analysis report. The primary sources of the information analyzed in this report were the legislative enactments relating to water resource management, the face-to-face interviews conducted with representatives from the major water resource related institutions in the study area, and information obtained from previous reports on similar subjects (notably several documents prepared by the Minnesota Water Planning Board). Analysis of this information was

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[1] Ibid, pg. 122-124. For a similar thought see Robert N. Anthony, Planning and Control Systems: A Framework for Analysis, Graduate School of Business Administration, Harvard University, 1965, pg. 5.

accomplished through use of the institutional analysis matrix, the development of implementation scenarios, evaluative comments by various knowledgeable individuals, network analysis of the various functional subsystems, and other techniques.

Of central importance to the analysis required of the consultant's project team and to those who might wish to utilize this report is the information concerning the water resource related functional capabilities of the various agencies and organizations in the study area. In this report information concerning these functional capabilities is presented primarily in the following sections: Descriptive Inventory of Organizations (Sec. 3), Review of Water and Related Land Resources Legislation (Sec. 4), and Organizational Responsibilities (Sec. 5). At this juncture in the overall 639 Study at which specific water resources alternatives are not being evaluated, the information contained in the institutional analysis can only be utilized to provide a general assessment of water resource management capabilities which exist in the entire institutional system. Individuals interested in a particular type of water resource activity and/or a particular water resource related function may use the information presented to direct and/or supplement their research.

The assumptions made for the development of this report are few. The first assumption made was that all of the water resource related functions performed in the study area and the agencies that performed them could be treated as a large system for the sake of analysis. This "system" is often referred to in this report as the existing water and related land use management system. The second major assumption is that use of a normative list of water resource related functions could be developed and would be valuable in the analysis

of the effectiveness of the existing water and related land use management system operating in the study area.

# 3. DESCRIPTIVE INVENTORY OF ORGANIZATIONS

After the general topic of concern or subject matter for the institutional analysis has been defined and the geographical area for the study is delineated, the next major step is to identify the institutions that must be included in the analysis. In this section of the report the institutions examined in this institutional analysis are enumerated and generally described. The major criteria used for the inclusion of institutions in this analysis were two: a recognizable functional relationship to water and related land use resources, and (2) jurisdiction in the study area described in the introduction.

The process of identifying the appropriate institutions to include in the analysis was greatly facilitated by several existing information sources and a number of knowledgeable individuals. It is appropriate to list several of the agencies which were most helpful in the compilation of information on the institutions which relate to water resources in the study area. They include the following agencies:

Area II Minnesota River Basin Projects, Inc.
Agricultural Extension Service-S. Dakota State Univ.
Agricultural Extension Service-Univ. of Minnesota
Minnesota Department of Natural Resources
Minnesota Soil and Water Conservation Board
Soil and Water Conservation District-Marshall, MN
Soil Conservation Service
South Dakota Dept. of Game, Fish & Parks
S. Dakota Dept. of Water and Natural Resources
Southern Minnesota Rivers Basin Board
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
Water Planning Board
Water Resources Research Center-Univ. of Minnesota

## 3.1 Definition of Institution

In an all encompassing type of institutional analysis the "Institutions" subjected to analysis would include both organizational and non-organizational institutions.

Organizational institutions for the purposes of this study include both formal and informal types of organizations. As stated in the scope of work for this study "formal organizations" would include instances of institutionalized human association having one or more of the following attributes: (1) collective name, (2) legal existence, (3) written charter, (4) list of membership, (5) set of officers, (6) an administrative support system, (7) physical equipment, (8) occasions of assembly, or (9) a set of explicit goals. Informal organizations would include informal voluntary associations and interest groups; any organization that has: (1) a shared goal, interest or perspective, (2) mutual awareness among members, and (3) active association in communication or cooperative behavior, whether or not actually meeting. An example of a formal organization included in this survey is the Minnesota Department of Natural Resources. An example of an informal group that is recognized in this study is the agricultural community at large within the study area.

## 3.2 Inventory of Organizations

This institutional analysis is to contribute to the joint study (639 Study) of the flooding problems in the Upper Minnesota River Subbasin. The perspective adopted by the St. Paul District of the U.S. Army Corps of Engineers in developing a scope of work for this institutional analysis was that the solution to specific flooding problems could only be approached within the wider context of water resources planning. The organizations that are included in this institutional analysis are those "organizations, groups, and associations having jurisdiction, interest, or other potential for involvement in water resources planning within the geographic boundaries of the study area."

The organizations included in the inventory are of several different types. There are governmental agencies

of various types and there are private interest groups and clubs. The majority of the organizations included in this analysis are governmental agencies. The agencies in the inventory can also be characterized in terms of the geographical area served by the organization. The geographical area of responsibility of the federal governmental agencies included in the analysis may be multistate, regional, or encompass the United States as a whole. The geographical area for which certain state agencies are responsible is the State of Minnesota or the State of South Dakota. Other state agencies have responsibilities to an intrastate region, which is less than statewide, but more than the study area. Other agencies are responsible for geographic areas which include only a portion of the study area. There are also local governmental units which constitute only a small portion of the study area. The fact that there is a lack of coincidence between the jurisdiction of the agencies of various types and the boundaries of the study area is further complicated by the fact that the study area includes parts of two states. Since the Upper Minnesota River Subbasin includes parts of the South Dakota and Minnesota, none of the stage agencies involved has jurisdiction over the entire study area.

Despite the jurisdictional incongruity of the organizations to the geographical area included in the Upper Minnesota River Subbasin, one of the most satisfactory ways of classifying the various organizations involved is by their position in a particular level of government; i.e., local, regional[1], statewide, or federal. The organizations determined to be relevant to the institutional analysis of the Upper Minnesota River Subbasin are listed below according to their jurisdictional scope.

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[1]In this context the term "regional" denotes a scope which is less than statewide.

FEDERAL

- Army Corps of Engineers
- Department of Agriculture
  - Soil Conservation Service
    - Agricultural Stabilization and Conservation Service (ASCS)
    - Farmers Home Administration (FHA), Science and Education Administration (SEA)
    - Economic Statistics and Cooperatives Service (ESCS)
- Environmental Protection Agency
- Department of Commerce
  - Economic Development Administration
    - National Oceanic and Atmospheric Administration (NOAA)
    - Coastal Zone Management (CZM)
    - National Weather Service (NWS)
- Department of Interior
  - Fish & Wildlife Service
  - U.S. Geological Survey
- Department of Housing and Urban Development
  - Federal Emergency Management Agency

STATE

- Minnesota Governor and Cabinet
- South Dakota Governor and Cabinet
- Minnesota Environmental Quality Board
- South Dakota Natural Resources Cabinet Subgroup
- Minnesota Water Planning Board
- Minnesota Water Resources Board
- S. Dakota Department of Water & Natural Resources
- Minnesota Department of Natural Resources
  - Division of Waters
  - Division of Fish & Wildlife
  - Soil & Water Conservation Board
- South Dakota Dept. of Game, Fish & Parks
- Minnesota Pollution Control Agency
- Minnesota State Planning Agency
- S. Dakota Planning Bureau
- Minnesota Dept. of Agriculture
- S. Dakota Department of Agriculture
  - Division of Conservation
- Minnesota Dept. of Economic Development
- S. Dakota Department of Economic & Tourism Development
- Minnesota Department of Health
- University of Minnesota
- South Dakota State University
- Minnesota Analysis & Planning Syste..
- South Dakota Municipal League

REGIONAL

Area II Minnesota River Basin Projects, Inc.
South Minnesota Rivers Basin Board
E. Dakota Conservancy Subdistrict
Minnesota DNR Regional Office
Minnesota PCA Regional Office
S. Dakota DWNR Regional Office
S. Dakota DGF&P Regional Office
Yellow Bank-Lac Qui Parle Watershed District
Yellow Medicine Watershed District
Upper Minnesota Regional Development Commission
Southwest Regional Development Commission
First Planning District (S.D.)
Audubon Society Chapters
S. Dakota Natural Resources Coalition

LOCAL

Local Agricultural Extension Agent
Soil & Water Conservation Districts
Counties
Municipalities
Townships
Lake Improvement Districts
Sportsmen's Clubs

## 3.3 Institutional Characteristics

Since the majority of institutions in this analysis are governmental agencies, they all may be defined in terms of the same general characteristics. Jurisdiction is one of these characteristics; however, equally important are several other characteristics: type of water resource program responsibility, size and type of staff, and size and source of budget. State, regional and local agencies under analysis have all been summarized in terms of these characteristics on the following page in Figure 3.1. Review of an agency's characteristics outlines the ability of the agency to participate in all or some phases of water resource management.[1]

[1]Separate profiles of each agency are found in Appendix A.

FIGURE 3.1

## SUMMARY OF INSTITUTIONAL CHARACTERI

*Information contained in this summary is based primarily upon information provided by representatives of the above-listed agencies in face-to-face interviews (see example of interview format in Appendix D). The information in this figure is incomplete, but represents all the information provided by interviewees (see also information on agencies in Appendix A.

| STATE AND LOCAL AGENCIES | GEOGRAPHICAL JURISDICTION | | | | | | PROGRAM[1] RESPONSIBILITY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Federal | State | Regional | Local | | | Water Resources Planning | Environmental Review | Water Quality Management | Water Quantity Management | Wildlife and Recreation | Resources Management | Related Land Resource | |
| **STATE** | | | | | | | | | | | | | | |
| Minnesota Environmental Quality Board | | X | | | | | | X | X | X | | | X | |
| Minnesota Water Planning Board | | X | | | | | X | | | | | | | |
| Minnesota Water Resources Board | | X | | | | | X | | | | | | | |
| S. Dakota Dept. of Water & Natural Resources | | X | | | | | X | X | X | X | | | | |
| S. Dakota Water Resources Commission | | X | | | | | X | | | | | X | | |
| Division of Waters, Minn. Dept. of Natural Res. | | X | | | | | X | | X | X | | | | |
| Soil & Water Conservation Board (MN-DNR) | | X | | | | | X | | X | | | | | X |
| S. Dakota Dept. of Game, Fish & Parks | | X | | | | | | X | | | | X | | |
| Minnesota State Planning Agency | | X | | | | | X | | | X | | | | |
| S. Dakota Planning Bureau | | X | | | | | X | | | | | | | |
| Minnesota Dept. of Agriculture | | X | | | | | | | X | X | | | | |
| Division of Conservation | | X | | | | | | X | | | | X | | X |
| Minnesota Dept. of Economic Development | | X | | | | | | | | X | | | | X |
| S. Dakota Industrial Dev. Expansion Agency | | X | | | | | | | | X | | | | |
| Minnesota Department of Health | | X | | | | | | X | X | | | | | |
| University Agricultural Extension Service | | X | | | | | | | | X | | | | X |
| Minnesota Analysis and Planning System | | X | | | | | X | | | | | | | X |
| **REGIONAL** | | | | | | | | | | | | | | |
| Area II Minnesota River Basin Projects, Inc. | | | X | | | | | | X | X | | | | X |
| Southern Minnesota Rivers Basin Board | | | X | | | | X | | | | | | | |
| East Dakota Conservancy Subdistrict | | | X | | | | X | | | | | | | |
| Minnesota DNR Regional Office | | | X | | | | | X | X | X | X | | | |
| Minnesota PCA Regional Office | | | X | | | | | | X | | | | | |
| Watershed Districts | | | X | | | | | | | X | | | | X |
| Regional Development Commissions | | | X | | | | X | | | X | | | | X |
| S. Dakota First Planning District | | | X | | | | X | | | | | | | |
| **LOCAL** | | | | | | | | | | | | | | |
| Soil and Water Conservation Districts | | | | X | | | | | | X | | | | X |
| County Government | | | | X | | | | | | | | | | X |

[1] Minnesota Water Planning Board, Technical Paper No. 15.

FIGURE 3.1

## F INSTITUTIONAL CHARACTERISTICS*

| OGRAPHICAL RISDICTION | | | | | | PROGRAM[1] RESPONSIBILITY | | | | | | | STAFF CAPABILITY | | | | | | | | | | | | FINANCIAL CAPABILITY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | SIZE | | | | | TYPE | | | | | | | SOURCES | | | | | | | BUDGET ($1,000's) |
| Federal | State | Regional | Local | | | Water Resources Planning | Environmental Review | Water Quality Management | Water Quantity Management | Wildlife and Recreation Resources Management | Related Land Resource Management | | 0-5 | 6-10 | 11-20 | 21-50 | 50 & Over | Administrators | Biologists | Computer Specialists | Conservationists | Engineers | Financial Advisors | Planners | Appropriation | Borrowing | Fees | Grants | Special Assessments | Taxing | User Charges | |
| | X | | | | | | X | X | X | | X | | | | | | | X | | | | | | | | | | | | | | |
| | X | | | | | X | | | | | | | | | X | | | X | X | | | | X | X | X | | | X | | | | 320 |
| | X | | | | | X | | | | | | | X | | | | | X | | | | X | | | X | | | X | | | | 100 |
| | X | | | | | X | X | X | X | | | | | | | | X | X | X | | | | X | X | X | | | X | | | | |
| | X | | | | | X | | | | X | | | | | | | | X | | | | | | | X | | | | | | | |
| | X | | | | | X | | X | X | | | | | | | | | X | | | | X | | X | X | | | X | | | | |
| | X | | | | | X | | X | | | X | | | | | | | X | | | X | X | | X | X | | | X | | | | 3,000 |
| | X | | | | | | X | | | X | | | | | | | X | X | X | | X | | | | X | | | | | | | |
| | X | | | | | X | | | X | | | | | | | | X | X | X | | X | X | X | X | X | | | X | | | | 14,000 |
| | X | | | | | X | | | | | | | | | X | | | | | | | | | X | X | | | | | | | |
| | X | | | | | | | X | X | | | | | | | | X | X | | | | | | X | X | | X | | | | | 55,000 |
| | X | | | | | | X | | | X | X | | | | | | X | X | X | | X | | | | X | | | X | | | | 2,800 |
| | X | | | | | | | | X | | X | | | | | | X | X | | | | | X | X | X | | | X | | | | 3,500 |
| | X | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | |
| | X | | | | | | | X | X | | | | | | X | | | X | | | | X | | | X | | | X | | | | 38,000 |
| | X | | | | | | | | X | | X | | | | | | | X | X | X | X | X | X | X | X | | | X | | | | |
| | X | | | | | | X | | | | X | | | | | | | X | | X | | | | | X | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | X | | | | | | | X | X | | | | X | | | | X | | | | | | | X | | | | | | | |
| | | X | | | | | X | | | | | | X | | | | | | | | | | | | X | | | | | | | 41 |
| | | X | | | | | X | | | | | | X | | | | | | | | X | | | | X | | | X | | X | | 150 |
| | | X | | | | | | X | X | X | X | | | | | | X | X | X | | | X | X | | X | | | | | | | |
| | | X | | | | | | | | X | | | X | | | | | | X | | | | | | X | | | | | | | 100 |
| | | X | | | | | | | | | X | | | X | | | | X | | | | | | | | | | | X | | | 50-200 |
| | | X | | | | | X | | | X | | | X | | | | | | | | | | | X | X | | | X | X | | | 275 |
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## 3.4 Analytical Observations

Institutional characteristics are basic to the concept of institutional analysis for two reasons. Primarily, the characteristics are simple facts which are based upon legislative enactments. Secondly, upon conclusion of the analysis of institutions with jurisdiction in the study area, these institutional characteristics will serve as guidelines for implementation of any flood control projects which result from the 639 Study. Awareness of the characteristics enables projects to be planned for implementation by the appropriate institution or agency. Each of the institutional characteristics is a variable which must be considered before a water management project is conducted. The agencies which have the financial and staff capability to fulfill program functions in a specific geographical jurisdiction must be specified in the development of plans.

Each of the institutional characteristics has a variety of forms. There are several different areas of program responsibility: environmental review, water quantity management and water quality management to name a few. An institution may have one of four geographical jurisdictions: federal, state, regional, local. Financial and staff capability are more flexible than other characteristics; they may be more readily increased or decreased in accordance with scope of responsibility assigned to the geographical jurisdiction and funds available. Given the present structure of program responsibility, the possible combinations of institutional characteristics are constrained within water resource legislation. Therefore, if a specific function is not "enabled" by law, the only option for providing the necessary function is to amend the law.

Significance of the limitations of various agencies is illustrated in the preceding matrix which summarized insti-

tutional characteristics. The agencies listed in the matrix exemplify the various combinations of institutional characteristics that exist. For example, the Minnesota Planning Agency has only one program responsibility, yet a large jurisdiction with large financial and staff capabilities. On the other hand, the Minnesota Water Planning Board has a large jurisdiction with a one program responsibility and a relatively small financial and staff capability. The East Dakota Conservancy Subdistrict has a relatively large jurisdiction with a number of management responsibilities, but a very small staff and budget. All of these agencies have limitations. The Planning Agency has limited program responsibility while the Water Planning Board and Conservancy Subdistrict have limited funds and staffing. The majority of state agencies have no taxing power to fund projects, rather they must depend on appropriations.

Although the implementation of various flood control projects may be constrained at present, it is entirely possible that program responsibilities may be reorganized through legislation to meet a special need. The Water Planning Board has been researching the effectiveness of water resource management. Results of their studies address the possible reorganization of program responsibilities in order to maximize the efficiency through coordination of all activities necessary to the programs. Upon assessment of the future needs of water resource management, the present management structure may be relieved of its constraints, thereby making any combination of institutional characteristics possible.

Review of institutional characteristics serves one further purpose, a reference tool for the sections which follow in this institutional analysis. The upcoming sections discuss legal implications and program functions. Both sections may pose questions concerning the extent of a program function. However, the institutional characteristics of financial and staff capabilities should supplement explanation of the extent of a program function.

## 4. REVIEW OF WATER AND RELATED LAND RESOURCES LEGISLATION

At present, both Minnesota and South Dakota have legal principles concerning water resources that are based on the prior appropriation doctrine. This is, given the face that there are two basic doctrines in the U.S. on which water law is based, the principles guiding the States of Minnesota and South Dakota are both more like the prior appropriation doctrine. The other doctrine, most common in states east of the Mississippi, is the reasonable use doctrine. It is also referred to as the riparian rights doctrine and the correlative rights doctrine, which is in use in California and which resembles the reasonable use doctrine.

The fundamental principle of the riparian rights doctrine is that owners of lands on the banks of watercourses have equal rights to make reasonable use of waters of the watercourse, subject to the equal right of the other riparian owners to make a reasonable use. In determining what is "reasonable" there are several factors that must be considered:

- About the nature of the use
  - Its extent
  - Its duration
  - Its necessity
  - Its application
- About the nature of the watercourse
  - Its size
  - The several uses to which it is put
  - Its physical characteristics
- The extent of the injury to one owner
- The benefit to other owners
- All other facts which may bear on the reasonableness of the use.

The prior appropriation doctrine, on the other hand, is based on the principle of the priority, or seniority, under which rights accrue to users in the order in which they first put waters to beneficial use.

> The principle is not equal right of use but paramount right in the earlier user. The use is not limited to riparian tracts but may be diverted to sites remote from the stream, thus spreading the benefits beyond riparian lands, a considerable advantage to some arid regions. The beneficial use is more extensive and includes use for irrigation, mining, manufacturing, as well as domestic uses, and the water may be permanently diverted and the stream thereby diminished to an extent not allowable under the riparian rights theory. See Bannister, Interstate Rights in Interstate Streams in the Arid West (1923) 36 Harv. L. Rev. 960.[1]

In both Minnesota and South Dakota in order to use significant amounts of either the surface or ground waters, one must apply to a state agency and be granted a permit for its use. This is the system which is in place now in both states included in the study area. Actually, the complete legal system concerning water rights in both states, viewed from the perspective of historical development, is unique and has some aspects of both the reasonable use doctrine and the prior appropriation doctrines.

Also present in the legal systems of both states is the recognition of the public interest in the waters within each state. The entire legal system concerning water rights in both Minnesota and South Dakota continues to grow toward meeting the challenge of protecting property rights, the public interest, and protecting and optimally managing on a long-term basis the water and related resources. There have been numerous changes in the development of water resource law in both states and there appear to be more changes ahead.

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[1] A. James Casnor and W. Barton Leach, Cases and Text on Property, Boston: Little, Brown and Company, 1951, pg. 1258.

The law in general, and the legislative enactments in particular, tend to reflect the values prevalent in society.* Taking this observation to be true, it is possible to make several types of observations from a review of the legislation concerning water and related resources in the study area.

The approach to be used in this section of the report begins with general observations, moves toward specific topics, and concludes with the application of the topics reviewed to the subject of a water resource management system in the study area. The most general observation would have to be that there are three major legal systems present within the study area: (1) the laws of Minnesota, (2) the laws of South Dakota, and (3) federal laws. The laws of Minnesota and South Dakota are mutually exclusive in one sense since the jurisdiction of the two states at no point covers the same geographical area. Federal law, on the other land, covers the entire study area and must be applied along with South Dakota law in those portions of the study area in South Dakota, and along with Minnesota law in those portions of the study area in Minnesota. There are, of course, several other hierarchical levels of legal systems. There are county ordinances, municipal codes, regional organizational regulations, and various powers of special districts. All of these governmental entities are basically creatures of the states and as such have only the powers given to them by state law.** Since many aspects of the management of water resources require

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*Many would argue that the values reflected by the law are several years out of date by the time they actually find expression in the law.

**The individual ordinances, rules, regulations, etc. of these units of government are not examined in this report except as their powers, etc., are set out in the laws of the states and/or the federal regulations.

a significant amount of attention at the local and regional levels, the fact that local and regional governmental entities are basically creatures of the state takes on added significance.

The law concerning water resources management can be found in several types of sources. The major sources of the law at each of the three systems are: (1) constitutional, (2) statutory, (3) administrative, and (4) the case law which relates to all the other sources. Statutory law is the primary source of legislative actions. Federal statutory law is found in the United States Code (USC); Minnesota statutory law is contained in the Minnesota Statutes (MS); and South Dakota statutory law is found in the South Dakota Compiled Laws (SDCL).[1] These documents are the major references that review water resource management legislation.

Even a brief review of the indices of the above-referenced documents reveals that there are many legislative enactments that have the potential for being included among those that concern water and related resources. This study is not expansive enough to include all of these enactments. The scope of work specified that only enactments which apply directly to the study area and its specific water and related resource problems as addressed in the context of the overall 639 Study are to be included in the analysis. The 1975 Congressional resolution authorizing this particular 639 Study limited the consideration to "...works of improvement needed for flood prevention or the conservation, development, utilization and disposal of water, and for flood control and allied purposes." In the Stage I Report prepared as one of the first elements of the 639 Study, flooding was identified as the problem of first priority. It would appear that flooding must be

[1]Exerpts from all of these sources have been included in the compendium of water resources law in Appendix B.

identified as the central problem around which other problems and needs cluster. Flooding would also seem to be the main reason for the authorization of the 639 Study effort. Relationship to flooding problems and measures to prevent flooding are obviously criteria that must be utilized to identify enactments relevant to this report.

In the analysis of the legislative enactments, the criterion of relationship to flooding control is applied in a fairly strict manner. In the next section of this report concerning "Organizational Responsibilities", the application of this criterion is relaxed in order to identify with more accuracy the extent of involvement of the various agencies in the general field of water resource management.

There are several general topics under which the relevant legislative enactments can be categorized:

1. Water policy;
2. Water and related land resource planning;
3. Flood control;
4. Flood plain management;
5. Major flood control structures;
6. Soil conservation, erosion control;
7. Stream maintenance;
8. Water supply management;
9. Drainage;
10. Water rights;
11. Coordination/integration.

The review of legislative enactments contained in this report is organized and presented in accordance with the general topical classification listed above.

It is to be noted that there may in fact be several legislative enactments from one state (or from the federal level) listed under a single categorical topic. This happens quite frequently because there are frequently several types of agencies to which a state may delegate powers and/or responsibilities that relate to a single subject area. It is to be noted also that there are three basic ways in which a particular legislative enactment can operate. A legislative enactment can operate proscriptively, permissively or positively.

- An enactment can prohibit certain types of activities and/or occurrences and assign to an agency the responsibility for enforcing the prohibition; this is a proscriptive enactment. Many proscriptive enactments place positive duties on certain agencies. For example, the National Enviornmental Policy Act (NEPA) prohibited certain kinds of pollution and required certain agencies to take positive steps to eliminate certain forms of environmental pollution.

- An enactment can also operate to grant to an agency the power to do certain things while not requiring the agency to utilize this grant of power. This type of enactment is permissive and usually called enabling legislation.

- An enactment may operate in a positive way to actually require an agency to perform a certain function; this is usually referred to as a mandate. In certain instances, a mandate can be very similar in effect to a proscriptive enactment which results in positive actions on the part of an agency.

## 4.1 Legal Mandates and Enabling Acts

In this section of the report, the various legislative enactments relating to the eleven above-listed water resource related topics are described briefly. Whereas no effort is made in this section to discuss the implications of these enactments on the institutional systems that may be required for implementing flood control and water resource management

measures[1], the descriptions of the enactments highlight those features which are relevant to the particular context of this 639 Study. The legislative enactments are discussed in their relationship to the eleven topics. In the discussion of each topic, the relevant aspects of appropriate enactments are included. Also, the laws of Minnesota and South Dakota will be reviewed for each topic followed by relevant federal enactments.

1. Water Policy.[2] Prevention and control of flooding are activities that can have pervasive effects on the water resources and land use in an area. The policies of the political subdivisions involved concerning the management of water resources are of necessity a major element in the determination of the specific measures that can be utilized to prevent and control flooding. There are two aspects of water policy that are discernable through review of the legislative enactments: (1) the identity of the bodies responsible for determining water policy, and (2) the nature of the water policy extant in the specific political subdivision.

In Minnesota there are three major agencies specifically charged with the determination of water policy: (1) the legislature, (2) the Environmental Quality Board, and (3) the Water Resources Board. The state legislature and the governor are naturally charged with overall responsibility. The legislature is the body that must ultimately enact legislation which pronounces the policy and outlines the various programs which involve water resources. In sections 116C.01 and 116C.04 of the Minnesota Statutes (hereinafter referred to as M.S.), the Environmental Quality

[1]Implications on the institutional composition of a water resource management system are discussed in Sec. 4.3.

[2]Also see the discussion of policy contained in Sec. 4.3.

Board is specifically charged with the responsibility of determining and investigating problems of interdepartmental concern that may require the interaction of several agencies. Among the topics specifically mentioned is water resources and quality. In §105.72 MS the charge is made to the Minnesota Water Resources Board to function as a forum to consider conflicting aspects, and through "consideration of the whole body of water law" determine controlling policy and resolve inconsistencies. It must be noted that apart from these three agencies, input to the formation of Minnesota's water policy is received from many other sources.

Water policy in South Dakota seems to be fairly clearly spelled out in the Compiled Laws in Chapter 46-1 regarding water rights. The balance of Title 46 of the South Dakota Compiled Laws (hereinafter SDCL) concern various aspects of water resources, in which water policy is clearly articulated in several instances. South Dakota is a water poor state and is vitally concerned with the development of its water resources. The Water Management Board within the Department of Water and Natural Resources is charged with some water policy functions (see §1-40-19 SDCL). The Board of Natural Resources Development is charged with the establishment of state policy on water facilities (see §46-17A-12). This board is also charged with resolving conflicting interests in proposed water projects and continuously reviewing the development and program of the statewide water plan (see §46-17A-13 and 14). It should be added that the development of the comprehensive statewide water plan is coordinated by the planning bureau per §46-17A-14.1; specific mention is made to the participation by the Departments of Water and Natural Resources and Game, Fish and Parks.

The enunciation of water policy at the national level must be more broad-gauged than it is at state level. The policy statements included in federal legislation are sometimes accused of sounding like statements favoring "motherhood and apple pie". The various major programs provided for in the federal legislation do, however, support all manner of efforts to conserve our soil and water resources. The declaration of policy in Title 16, §1001 of the U.S. Code (hereinafter USC) about Watershed Protection and Flood Prevention is a good example:

> Congressional Declaration of Policy
>
> Erosion, floodwater, and sediment damages in the watersheds of the rivers and streams of the United States, causing loss of life and damage to property, constitute a menace to the national welfare; and it is the sense of Congress that the Federal Government should cooperate with States and their political subdivisions, soil or water conservation districts, flood prevention or control districts , and other local public agencies for the purpose of preventing such damages, of furthering the conservation, development, utilization, and disposal of water, and the conservation and utilization of land and thereby of preserving, protecting and improving the Nation's land and water resources and the quality of the environment.

The policy statements in the National Environmental Policy Act (NEPA) are even more broad and sweeping. Nevertheless, these policy statements, accompanied by more specific guidelines and the attractiveness of tapping federal grant monies have had a great influence on state legislation. As a result, there is a generation of specific projects in local areas to prevent and/or control flooding and to conserve and protect soil and water resources.

At the national level there are several actors involved in the formulation of water policy. There are also several elements which must be considered in discussing the full scope of water policy. The Congress, the Executive Branch and the Judiciary are all major actors in the formulation and/or application of water policy. The elements that must be examined to arrive at a full understanding of national water policy include not only the enactments, but also the agency regulations and practical application on the part of the various federal agencies. The U.S. Congress is, of course, the source of the legislative enactments and as such is in charge of establishing water policy. At the national level, even more than at the state level, the directors and key staff of the natural resource related agencies play an important part in developing, or at least applying, policy. It is also to be noted that the executive branch of the federal government has a great influence on the development of policy. The executive branch is responsible for the development of programs that are (hopefully) submitted to the legislature for enactment. The Congress, of course, has the option of changing, rejecting, or not acting on these submissions. The Executive Branch has another vehicle through which it can influence policy.[1] Executive Orders which are drafted by the Executive Branch to further the purpose of the legislation can do much to set priorities and affect policy in that federal agencies are required to promulgate implementing regulations for executive orders. After legislative enactments have been around for a while, the judicial system plays a part in that the courts are called upon to interpret meaning and to settle controversy that may arise concerning these enactments. The original separation of powers concept on which the United

[1] Executive Orders 11988 (Flood Plain Management) and 11990 (Wetlands) are two examples.

State's government is based, indicates that it is the legislative and executive specifically, not the judiciary, that makes policy. However, the judiciary certainly has had ample opportunities to explain the policy as set forth in the legislative enactment; for example, there is much activity in the courts at this time in the case of the relatively new National Environmental Policy Act.

2. Water and Related Land Resource Planning.

In order to develop, select, and implement an effective set of flood control and water resource management alternatives which is responsive to the particular needs of a specific area, a significant amount of planning is required. In Minnesota water and related land resource planning is provided for in eight separate chapters of the Minnesota Statutes. What this means is that eight separate agencies are specifically empowered to plan for the management or partial management of water and related land resources. This is not as duplicative as it may first appear. Four of the eight agencies are basically local governmental units: counties (§ 394.23 M.S.), soil and water conservation districts (§ 40.02 and .07 M.S.), watershed districts (§ 112.43 M.S.) and drainage and conservancy districts (§ 111.08 M.S.). And, whereas the entire Minnesota portion of the study area is blanketed by counties and soil and water conservation districts with these powers, the watershed districts and the drainage and conservancy districts do not cover the entire Minnesota portion of the study area. One agency, the Southern Minnesota Rivers Basin Board, has a large regional perspective that includes all of the Minnesota portion of the study area as well as other areas in southern Minnesota (see § 114A.01 and .03 M.S.). The other three agencies with water resource planning responsibilities act at the state

level: the Environmental Quality Board (§116C.04 and .07 M.S.), the Water Planning Board (§105.403 M.S.), and the State Planning Agency (§§4.10 and .12 M.S.).

In South Dakota, there are also several agencies with the powers to engage in water and related resource planning. At the state level, the Departments of Water and Natural Resources; and Game, Fish, and Parks engage in the development of the state's comprehensive water plan. This effort is coordinated by the planning bureaus and reviewed by the Board of Natural Resources Development (see §§46-17A-14 and -14.1). Whereas there are four state agencies participating in the planning for water resources, their efforts are coordinated and are being devoted to the development of one plan. At the regional level in South Dakota, an agency with significant water resource related powers is the East Dakota Conservancy Subdistrict. The responsibility for developing plans for water resources on a regional basis is not specifically assigned to the subdistrict. The subdistrict is charged with assisting in the responsibility for the coordination of water projects, and has a fairly broad grant of powers "reasonably necessary to accomplish the purpose and intent" of its assigned responsibilities (see §§46-17-16 and -29 and Chapter 46-18). Given this context, it would be reasonable, if not absolutely necessary for the conservancy subdistrict to engage in water resource planning. At the local level the counties have the powers to engage in locally oriented planning that relates to water and related resources. The First Planning District, which is a regional agency, actually performs more on a locally-oriented level than on the regional level as might be expected. The planning district functions in a manner which supports and/or augments the local planning capabilities. The planning district does not engage in developing regional plans. The watershed districts that

have been formed in South Dakota have the mandate to prepare and adopt an "overall plan for improvements within the district for reclamation, drainage, erosion and flood control and improvement of lands, soils, waters..." (§46-24-47 SDCL). It is interesting to note that the South Dakota law requires that this plan be made "in consultation with the district supervisors of the soil and water conservation district or districts in the watershed district" (§46-24-47 SDCL). The soil and water conservation districts in South Dakota also have water resource planning powers. The nature of this power is permissive and includes the power to make annual and long range plans.

The plans which may be prepared by the soil and water conservation districts "may be prepared with the co-operation and assistance of the State Planning Commission (sic) and other state and federal agencies, for the conservation of all renewable natural resources and for the control and prevention of soil erosion, flood prevention..." (§38-8-50 SDCL).

There are numerous instances in the federal legislative enactments in which planning includes consideration of water and related resources. In fact, the National Environmental Policy Act mandated that essentially all federal programs must specifically consider possible effects on the natural environment. Effects on water resources are possibly the most common and pervasive environmental impacts in any project. Besides NEPA there are several major pieces of federal legislation which have water resource planning components. The Federal Clean Water Act (PL 92-500) has provided the funding for the development of a great deal of knowledge about water resource planning--not only about the physical relationships involved in water quality, but also about

implementation of plans, institutional arrangements, management systems, and continuing planning efforts as well. A significant amount of the source information used in the development of this institutional analysis became available as a result of the planning studies conducted under section 208 of the Federal Clean Water Act. In 16 USC 1001 et seq. concerning "Watershed Protection and Flood Prevention", the Secretary of Agriculture through the various agencies within the Department is authorized to assist local organizations in several types of planning activities specifically designed to conserve water and related resources (e.g., 16 USC 1003). Also in 16 USC 1009, a part of this same legislative topic, the Secretary of the Army and the Secretary of Agriculture (i.e., Corps of Engineers and S.C.S.) are authorized to make joint investigations of watershed areas and to make recommendations regarding flood prevention, conservation of water, etc. These recommendations are in fact a type of planning. In 16 USC 590 the powers of the Soil Conservation Service (SCS) established therein include assisting localities in the development of plans.

There are several legislative enactments which authorize the Corps of Engineers to engage in planning which affects water and related resources. There are numerous special enactments delegating the Corps specific responsibility to assist in the development of water resource plans for specific areas. The overall 639 Study of which this report is a part, is an example. Also, the Corps has responsibilities for flood control and allied types of planning under the authority granted in 33 USC 701 et seq. concerning "Flood Control" in "Navigable Waters". See 33 USC 701-1(a). It should be noted that within this enactment there are several references to joint action and/or a division of responsibilities between the Corps and Department of Agricultures (e.g., 33 USC 701b-2 and 701b-6).

3. Flood Control.

The central topic in this 639 Study effort seems to be flood control. Flooding is a problem of major significance in the study area. Flooding causes a great deal of damage in the study area because of the flooding itself and because of particular usage of the land. If the land in the study area were mostly devoted to range land and was kept in grass, the damages caused by the flooding would not be as great; if the land were heavily urbanized, it is possible that the damage caused by flooding would be greater than it has been. But the land in the study area is ideally suited to intensive agricultural uses and the flooding which occurs causes extensive damage which is well documented. The legislative enactments, without exception, provide for actions to be taken by designated agencies, to prevent and control flooding.

Flood control is specifically provided for in five separate chapters in the Minnesota Statutes. At the local level, counties have powers to control flood waters including the power to construct and maintain water retention and detention structures (§106.021 MS). It is to be noted that the counties' power to control flooding is constrained in that whenever "public waters" are involved, the authority of the Commissioner of Natural Resources of the State of Minnesota must be utilized. Both drainage and conservancy districts and watershed districts (§111.03 and 112.36 and .43 respectively) have the power to control flooding. The measures that can be utilized by these two special districts include both structural and non-structural measures. It must be noted that the powers of these two special districts for flood control, including structural measures, are far more clearly delineated in the statutes than are their powers to utilize non-structural measures. This is also the case in the delineation of the power of the soil and water conservation districts for flood control (see §40.07 MS). In Sec. 40.02 MS, however, there is

specific language which would seem to encourage the use of non-structural measures which would contribute to the control of flooding, to wit:

> Improper land-use practices have caused serious wind and water erosion of the lands of this state, the runoff of polluting materials, increased costs to maintain agricultural productivity, increased energy costs and increased flood damage. Land occupiers have the responsibility to implement the practices which correct these conditions and to conserve the soil and water resources of the State.
>
> It is the policy of the State to encourage land occupiers to conserve the soil and water resources through the implementation of practices that effectively reduce or prevent erosion, sedimentation, siltation, and agriculturally related pollution in order to preserve natural resources, insure continued soil productivity, control floods, prevent impairement of dams and reservoirs, assist in maintaining the navigability of rivers and harbors, preserve wildlife, protect the tax base, and protect public lands.

Section 105.48 of the Minnesota Statutes and certain other sections within Chapter 15 would seem to give the Department of Natural Resource adequate powers to build and maintain structures to control flooding. Whereas flood control does not seem to be specifically mentioned, the parallel values of protecting and improving the domestic water supply, protecting and preserving fish and other wildlife, protecting the public interest in public waters and promoting the public health are listed as justification for the grant of power to construct and maintain these structures.

In Title 46 of the South Dakota Compiled Laws the first fifteen chapters are devoted to the development and use of

water resources. The next three chapters in this title are very much related to the development of water resources, but pertain specifically to the "Water Conservancy Districts", the "South Dakota Conservancy District" and the sub-districts. Chapter 46-19 deals with "Flood Control Works". This is a relatively short chapter and essentially requires all owners, sponsors and constructors of works to control floods to take all possible measures to minimize the adverse effects on domestic water supplies and uses of water under appropriate water rights (Sec. 46-19-2 SDCL). In this chapter also, the Water Resources Commission is charged with the responsibility of reviewing, approving and later inspecting all flood-control facilities "with the objective of minimizing any adverse effects of the proposed construction on water supplies for domestic and other beneficial uses and on existing water rights" (§46-19-1, 2, 3, 4 and 5 SDCL). The powers of the various agencies in the state of South Dakota to engage in flood control are specified in other titles and chapters within the South Dakota Compiled Laws. The conservancy subdistrict has flood control powers up to and including the construction of structures (section 46-17-1 and Chapter 46-18 SDCL). Watershed districts take their flood control powers from Sec. 46-24-4 of the Compiled Laws. From a reading of Chapter 38-8 of the Compiled Laws, it appears that the majority of the sections in this chapter are devoted to the process of forming a soil and water conservation district. In Sec. 38-8-60, the soil and water conservation districts are granted powers to construct, operate and maintain structures which "may be necessary or convenient for the performance of any of the operations authorized in this chapter." Counties in South Dakota are clearly granted powers of flood control in Sec. 7-18-15 SDCL. It is also to be noted that the counties are specifi-

cally authorized to cooperate with units of federal and state government in preventing or controlling flooding (§7-18-14 and 16 SDCL). The single state agency with major flood control powers would seem to be the Department of Water and Natural Resources. In addition to their significant powers in eliminating water pollution contained in several chapters in title 34A SDCL, the Department of Water and Natural Resources has powers to construct, maintain and operate flood control structures.

At the federal level, the two most important pieces of legislation concerning flood control are 33 USC 70 et seq. (Chap. 15:Flood Control) and 16 USC 1001 et seq. (Chap. 18 Watershed Protection and Flood Prevention). The flood control statutes (33 USC 701 et seq.) give the Corps of Engineers extensive powers in the area of flood control. The watershed protection and flood prevention statutes (16 USC 1001 et seq.) grant extensive powers to the Department of Agriculture to control flooding. The two other federal agencies with significant powers in the area of the control of flooding are the Environmental Protection Agency and the Federal Emergency Management Agency (see 42 USC 4321 et seq. and 42 USC 4001 et seq., respectively). The impact that these two agencies have on flood control stems mostly from their powers, some direct and many indirect, over the regulation of land and water. The Environmental Protection Agency and the U.S. Fish and Wildlife Service both have other roles to play in the flood control activities undertaken by many units of both state and federal government. Through the environmental impact statement process (administered by EPA) and the Fish and Wildlife Coordination Act (administered by the U.S. Fish and Wildlife Service), these two agencies have a significant voice in the manner in which the flood control activities of other agencies are actually applied in a specific geographical location.

4. Flood Plain Management

A specific type of flood control and method of reducing damages caused by flooding is flood plain management. From the statutory materials in Minnesota it appears that the primary responsibility for flood plain management has been placed upon the counties. There is, in fact, a legislative mandate that counties develop a flood plain management plan. Chapter 104 of the Minnesota Statutes deals exclusively with flood plain management. Sec. 104.04 of that Chapter requires local governmental units to prepare or amend a flood plain management ordinance in conformance with the sections of that chapter within 6 months after sufficient technical information is available for the delineation of flood plains and floodways. The Commissioner of Natural Resources is charged with the responsibility of reviewing and approving these ordinances before their adoption and ensuring that each unit of local government in which flooding is a problem adopts an appropriate ordinance. The Commissioner also has other responsibilities regarding the promulgation of rules and regulations necessary to carry out the purposes of flood plain management as described in this chapter. Whereas this chapter of the Minnesota Statutes defines units of local government as counties and municipalities (Sec. 104.02 MS), both watershed and soil and water conservation districts would seem to have powers which would allow them to participate significantly in flood plain management. Sec. 112.43 of the Minnesota Statutes empowers the managers of the watershed districts to prepare a flood plain map of the lands of the district. It is specifically mentioned that this map shall be made available to counties and municipalities for inclusion in flood plain ordinances. Sec. 40.07 MS lists the powers of soil and water conservation district boards, these powers read with the policy statement contained in Sec. 40.02 MS would seem to encourage the soil and water

conservation districts to engage in, or assist the units of local government with, flood plain management activites. The regional development commissions in the state of Minnesota have authority to coordinate flood plain management programs within the region. This power is contained in Subdivision 6 of Sec. 462.391 MS.

Whereas the Minnesota Statutes contain an entire chapter devoted to flood plain management, the term does not even appear in the indexing system to the South Dakota Compiled Laws. This is not to say that flood plain management is an activity which is not conducted within the State of South Dakota. On the contrary, a thorough reading of Chapters 11-2 and 11-4 of the South Dakota Compiled Laws (SDCL) regarding the planning and zoning powers of counties and municipalities respectively indicates that both local government entities are to give due consideration to flood plains in the development of comprehensive plans. The soil and water conservation districts through their powers in Secs. 38-8-61 and 62 and the watershed districts through their power in Sec. 46-24-4 also have adequate powers to engage in flood plain management. Likewise, the Department of Water and Natural Resources through its powers delineated in Chapter 46-19 has authority to engage in flood plain management activities.

At the national level, flood plain management as a concept has been around for some time. Notwithstanding this, the relatively recent (1976) legislative enactment on the national flood insurance program has probably done more to encourage flood plain management activities than any other single legislative enactment at the national level. Using the typical carrot and stick approach of many federal legislative enactments, "the act provides that flood insurance shall not be sold or renewed under the program within a

community, unless the community has adopted adequate flood plain management regulations consistent with federal criteria" (§1910.1 Federal Register, Vol. 41, No. 207, Tuesday, October 26, 1976). This enactment also calls for state participation to the extent that legislation be passed to enable counties and municipalities to regulate development in flood prone areas and designating an agency of the state government to be responsible for coordinating the federal, state and local aspects of flood plain management (§1910.25 Federal Register, Vol. 41, No. 207). Because of this major piece of federal legislation, many of the flood plain management programs which exist in states today are similar in their provisions. The National Flood Insurance Act of 1968 (PL90-448) is administered by the Federal Emergency Management Agency which is under the Department of Housing and Urban Development. Because of the scope of the National Flood Insurance Program, it is logical to assume that at least three other major federal agencies will become involved in the program in one way or another. The three agencies would be the Corps of Engineers, the Soil Conservation Service, and the Environmental Protection Agency. Both the Corps of Engineers and the Soil Conservation Service provide technical services to localities which assist these localities in complying with the requirements of the National Flood Insurance Program. The Corps of Engineers provides technical planning assistance in this effort by supplying on request (under §206 of the 1960 Flood Control Act as amended) maps for floodway and flood plain delineation. This is a service function and the Corps has no enforcement powers to require the communities or the state to incorporate the map as it is provided. Therefore, the official delineations may differ from the 'hydrologically correct' ones if the 'political exigencies' in the state-community interactions demand it. This is one instance where the enactments, as law, differ from the applications, in practice. The Environmental Protection Agency becomes involved through the nexus between this program

and environmental pollution. The U.S. Fish and Wildlife Service would also be involved in this program. The Fish and Wildlife Coordination Act essentially requires that projects which are planned, formulated and/or implemented under federal programs give full consideration for the protection, restoration and enhancement of fish and wildlife resources. Obviously, activities that would be undertaken as a part of flood plain management have a significant potential impact on the fish and wildlife resources.

5. Major Flood Control Structures

In addition to the nonstructural method of flood protection and control, there are structural measures. In the past structural methods for flood control were much more heavily utilized than today. However, even with the emphasis on nonstructural flood control measures today, there is still a very real need for some types of flood control structures.[1] Included in the list of flood control structures are water retention and detention structures, dikes, levies, barriers, retards, drains, and ditches. In the cases of Minnesota, South Dakota and the national level agencies, the legislative enactments and the agencies involved in the construction, operation and maintenance of flood control structures are essentially the same as those described in topic no. 3 above (i.e., Flood Control).

6. Soil Conservation and Erosion Control

The relationship between the use of the land and water resources is well documented. The many 208 water quality management studies conducted around the country have done

[1] In this particular 639 Study, it is to be remembered that the "real need for...flood control structures" must not be a presupposition, but can only be a possible conclusion of the 639 planning study.

much to increase our knowledge about the various relationships the use of land has to water quality. Also, our knowledge of the manner in which various land uses affects the water storage capacities of land in a particular geohydrologic unit has been increased significantly in recent years. Another aspect of the relationship between land use and flooding has received much attention--the conservation of soil and the prevention of soil erosion. One of the major causes of soil loss is flooding and other erosive effects of water. There are obvious commonalities in the goals of the control of flooding and the prevention of the erosion of soil.

In the State of Minnesota, three agencies have primary responsibility for soil conservation and erosion control. In §394.25 MS the counties are authorized to adopt soil and sediment control ordinances (see Subdivision 9). It is to be noted this authorization is permissive and is not a function mandated to the counties by the state. The soil and water conservation districts in the state seem to be the primary agency for technical assistance to localities with regard to the conservation of soil and erosion and sedimentation control methods. In the purpose statement in §40.03 and 40.07, the soil and water conservation districts are authorized to "develop programs to reduce or prevent soil erosion, sedimentation, flooding and agricultural related pollution including but not limited to structural and land use management practices" (§40.03 Subd. 4, Item 11 MS). The watershed districts within the State of Minnesota are also empowered to conduct activities to control or alleviate land and soil erosion and the siltation of water courses. This authorization is found in §112.36 MS. It should be noted that the counties and soil and water conservation districts have historically cooperated in the area of the conservation of soil and the prevention of erosion and sedimentation. In §394.25 MS it is even stated that erosion and sedimentation control plans

requires by county ordinances may be submitted to the soil and water conservation district for review and comment.

The policy of the State regarding the conservation of the soil and soil resources and for the control and prevention of erosion within the State of South Dakota is clearly stated in Sec. 38-7-1 SDCL. A reading of Chapters 38-7 and 38-8 of the Compiled Laws leave no doubt that the soil and water conservation districts in the State of South Dakota are to take a lead role in the "control and prevention of soil erosion" within the state (Sec. 38-8-50 SDCL). Other powers relating to the control of erosion and sedimentation are granted to the soil and water conservation districts in Secs. 38-8-62, 63, and 64 SDCL. Chapter 38-8A entitled "Soil Erosion and Sediment Damage Control" further delineates the powers of the districts. In the State of South Dakota the laws which permit the formation of watershed districts encourage strong cooperation between watershed districts and the soil and water conservation districts. Watershed districts are also authorized to participate in the control or alleviation of land and soil erosion and siltation of water courses within the State (Sec. 46-24-4 SDCL). At the state level in South Dakota, the Water and Natural Resources Board (created by Sec. 1-40-5 SDCL) is authorized to resolve conflicting special interests of federal, state, and local agencies or entities,or private interests in proposed order projects (Sec. 46-17A-13 SDCL). Among the beneficial purposes to be considered by the Board in this function of resolving conflicting interests is the area of erosion control. In South Dakota as well as in Minnesota, the counties and municipalities are empowered to consider soil erosion and sedimentation control in the development of comprehensive plans and related regulations (Chapters 11-2 and 1104 respectively). The localities can expect to receive assistance in their planning endeavors to control soil erosion and sedimentation from the soil and water

conservation districts and the regional planning agencies within the state (see Chap. 11.1 regarding the planning assistance offered by regional planning agencies to localities).

As indicated in the foregoing paragraphs the soil and water conservation districts are the key agencies which offer technical assistance to units of local government in the area of soil conservation and erosion and sedimentation control. 16 USC 590 et seq. are the sections of the federal statutes covering soil conservation. This chapter includes the legislative establishment of the soil conservation service which is the primary agency under the Department of Agriculture which provides funding and technical assistance to the soil and water conservation districts all over the country. In addition to Sec. 590 of 16 USC, there is also Secs. 1001 et seq. of Title 16 of the US Code having to do with water protection and flood preservation. This legislative enactment also empowers the Secretary of Agriculture to undertake many different types of activities to preserve the soil resources and to control erosion and sedimentation. Again, as a practical matter, the Department of Agriculture utilizes the Soil Conservation Service as the primary agency to accomplish the purposes stated in this legislative enactment.

7. Stream Maintenance. Also important enough to warrant specific attention in the legislative enactments is the activity of maintaining the water courses. Stream maintenance involves physically clearing water courses of debris that can impede or block the water flowing in the streams. The debris may not be troublesome in periods of normal or low flows, but when high flows occur the debris and blockages can cause and/or exacerbate flooding, thereby causing damage.

In Minnesota, the legislative enactments recognize the local nature of the task of stream maintenance. Four types of governmental units are specified as having the powers to maintain streams. Counties (§105.475 MS), drainage and conservancy districts (§111.03 MS), watershed districts (§112.36 and 43 MS) and soil and water conservation districts (§40.07 MS) have powers to maintain streams and water courses. In §105.475 MS the Commissioner of the Department of Natural Resources is authorized to establish and supervise a stream maintenance program which has as its basis grants-in-aid to counties desiring to participate in the stream maintenance program and make application for the grants. The grants from the Commissioner may not exceed 75 percent of the total cost of a stream maintenance project and the maintenance work can be performed by the county or under county supervision. In Minnesota, stream maintenance in State waters requires a permit from MDNR regardless of financial arrangements. In §1103 MS it is stated that drainage and conservancy districts may be created for the purpose of widening, deepening, straightening or otherwise improving the use and capacity of streams, channels or watercourses. This authority would include clearing streams of debris and other blockages. In §112.43 the watershed districts are empowered to clean and repair any river or watercourse (natural or artificial) within the district. This authority would allow the watershed district to participate in stream maintenance activities. The powers listed in §40.02 and 40.07 MS, specifically those regarding the reduction of flooding would seem to give to the soil and water conservation districts an adequate base of authority to utilize in participating in stream maintenance activities.

In South Dakota too, the major responsibility for stream maintenance and the maintenance of other existing watercourses, ditches, drains, or levies (natural or such as may

have been previously constructed), is assigned to the counties (§46-20-1 SDCL). Sec. 46-20-47 empowers the Board of County Commissioners to "make such rules and regulations on the subject of drainage as it may deem proper... and especially with regard to clearing out and keeping clear the channels of streams and the construction and maintenance of dams thereupon with reference to their capacity for drainage." The watershed districts and the soil and water conservation districts in South Dakota through their grant of general powers also have the authority to engage in stream maintenance activities. Sec. 46-24-4 SDCL specifically mentions that a watershed district may be established for the purpose of the improvement of stream channels.

At the federal level, the activities involved with stream maintenance merit little or no attention in the legislative enactments. As a practical matter, stream maintenance which improves the capacity of streams and other watercourses to carry flood waters corresponds with the goals and objectives of several of the programs administered by the Department of Agriculture through the SCS and the Department of Army through the Corps of Engineers. The Corps, of course, has the authority and has participated in programs to maintain all waters that meet the definition of "navigable" under their legislative mandate. The Corps has permitting authority for stream maintenance on navigable waterways under its "Section 10 program" Also, various stream maintenance activities such as clearing debris and other blockages from watercourses are items that would naturally be included in any comprehensive planning efforts to control and/or prevent flooding and prevent siltation.

8. Water Supply Management. The physical relationships between the land and the water make water supply management a topic related not only to water resource management, but also

to flood control. Flood control structures may under certain conditions increase the water supply available to an area. Preserving wetlands rather than draining them can increase the water holding capacity of land, thereby accomplishing two results: (1) increasing the water supply, and (2) reducing the adverse effects of flooding (i.e., by storing flood waters in a manner not harmful to the land). There are other aspects of water supply management that have results which are beneficial or supportive of other facets of water resource management including flood control.

"The Commissioner (of the Department of Natural Resources) shall develop and manage water resources to ensure a supply adequate to meet long-range seasonal requirements for domestic, municipal, industrial, agricultural, fish and wildlife, recreational, power, navigation, and quality control purposes from surface or ground water sources or from a combination of these." With this quote from Sec. 105.405 of the Minnesota Statutes, the primary responsibility for water supply management in Minnesota is assigned to the Commissioner of the Department of Natural Resources. The Commissioner and the Department have at their disposal numerous methods for ensuring adequate water supplies in the State. As previously mentioned, Minnesota has an appropriation system for the assignment of the beneficial use of waters. An application to and written permit from the Commissioner is required for almost all significant uses of water resources (see Chapter 105 of the Minnesota Statutes generally). It should be noted that Chapter 105 also contains other measures to be utilized by the Commissioner in managing the water supply.

The public waters program is authorized in Sec. 105.391 and the Water Banking Program is described in Sec. 105.392. The powers granted to the Department of Natural Resources through

these two sections have done much to conserve water basins and wetlands in the State. Watershed districts in Minnesota can be established for the purpose of "providing and conserving water supply for domestic, industrial, recreational, agricultural, or other public use" (Sec. 112.36 MS). The soil and water conservation districts in Minnesota have a grant of general powers in Secs. 40.03 and 40.07 MS which when read with the policy statement contained in Sec. 40.02 would give the watershed districts power to engage in several types of water conservation activities. These activities would be part of a water supply management program and would include such things as the preservation of wetlands and the construction of water retaining and detaining facilities which would increase the water supplies available in a specific area.

The general statement of policy which begins the chapter on the South Dakota conservancy district in the South Dakota Compiled Laws sets the tone for the philosophy which South Dakota has developed for water supply management. This purpose statement is included below:

> The general health, welfare and safety of the the people of the State of South Dakota are dependent upon the conservation, development, management and optimum use of all water resources within the state's boundaries. To achieve this objective and protect the waters of South Dakota from diversion out of State, it is essential that a co-ordinated,integrated, multiple-use water resource policy be formulated and and a plan and system developed to activate this policy as rapidly as possible. It is in the public interest that these functions be carried out through a co-ordination of all State agencies and resources.

The above policy statement found in Sec. 46-17A-1 of the South Dakota Compiled Laws is appropriate for the general

thrust of Title 46 on waters and water rights, which is aggressive development and use of the state's scant water resources. This policy has important implications for any recommended structural or non-structural solutions in South Dakota (e.g., levees, dry dams, wet dams,wetland restoration, etc.) and must be incorporated into any water resource planning involving South Dakota. In Chapter 46-17A the Water and Natural Resources Board is charged with the task of establishing the statewide policy on all multi-purpose water facilities (Sec. 46-17A-12). This Board is also charged with various other responsibilities for the overall development of the water resources management system for the State of South Dakota. Both the watershed districts and the soil and water conservation districts in South Dakota have general powers that would allow them to participate in programs for the development and management of water resources. Sec. 46-24-4 indicates that a watershed district may be formed for the purpost of providing water supply for irrigation. Secs. 38-8-50 and 38-8-62 indicate that the soil and water conservation districts have powers to plan for and conduct projects that involve water management and the conservation of waters generally. This can be found in Chaps. 7 and 9 of the South Dakota Compiled Laws respectively, under the general grants of powers to counties and municipalities within the State of South Dakota. These units of government have the power to develop water supplies. Sec. 46-17A-22.1 empowers the Board of Natural Resources development "to make -rants to rural water supply systems organized pursuant to Chap. 10-36A or special purpose governmental entities organized under the laws of the State of South Dakota for small water development projects."

At the central level, the two lead agencies participating in the management of water supply are the Department of Agriculture through the Soil Conservation Service and

the Department of Army through the Corps of Engineers. The general grant of authority for these two agencies comes from the Watershed Protection and Flood Prevention Act (16 USC 1001 et seq.) for the Department of Agriculture and from the Flood Control Act (33 USC 701 et seq.) for the Department of Army. The grants of authority to the Corps of Engineers technically relate only to flood control and "allied purposes". It is recognized in this legislative enactment, however, that structures for the purpose of flood control can serve multiple beneficial uses. Among these other beneficial uses is the development of water supply. The Department of Agriculture and the Department of the Interior are specifically mentioned within this legislative enactment as agencies with which the Department of Army must coordinate in investigating planning for and construction of facilities with purposes that relate to the concerns of these other departments. There is one other federal agency that is involved in the field of water supply management. The U.S. Geological Survey under the Department of the Interior in its development of information regarding ground and surface waters and other geohydrologic information is a major source for the technical information needed to intelligently manage water supply resources in all parts of the country. In South Dakota and Minnesota as is the case in many states, there is a very strong relationship between the USGS and the state geological survey agencies. The geological survey agencies in both South Dakota and Minnesota play an important role in the development and organization of information regarding the geohydrological information needed in these two states to intelligently manage water resources.

9. Drainage. Whereas water is an essential ingredient to successful agricultural endeavors, excess water on the land is a condition which is not conducive to the growing,

nurture and/or harvesting of most crops. Draining water from agricultural lands is an expensive endeavor. Furthermore, once the water is successfully drained from a particular field or series of fields, the waters must then be conveyed to a watercourse so that the waters can be carried away. Oftentimes, these drainage efforts require the cooperation of a number of land owners and local governmental units. Legislative enactments were deemed necessary to provide a vehicle to encourage the concerted action of all necessary parties to accomplish the tasks involved in drainage.

Chapter 106 of the Minnesota Statutes is devoted to the subject of drainage. This chapter gives the counties and the district courts authorization to make all necessary orders for public drainage systems and cause them to be constructed and maintained (Sec. 106.021 MS). The chapter is fairly long and very involved and deals extensively with the administrative and financial arrangements that must occur in the construction and maintenance of drainage systems. Also included in this chapter are several references to the necessity for coordination with the Department of Natural Resources in cases in which drainage affects water basins, public waters[1], or other resource management topics such as flood control, soil and water conservation, etc. The drainage and conservancy act of Minnesota, set out in Secs. 111.02-111.42 MS, authorizes the formation of drainage and conservancy districts. The district courts of the counties have the authority to establish these drainage and conservancy districts and the districts may be established for the purpose of

[1]There have been significant problems regarding the DNR authority and actions in defining what is and what is not "public waters". The major manifestations of these problems have been in the lack of public acceptance and the number of court challenges.

constructing, controlling and maintaining drainage systems. Like the counties, this special district must coordinate with the Department of Natural Resources in those instances in which drainage affects the other water resource related topics such as flood control, soil and water conservation, erosion and sedimentation control, public waters and watershed development. As in most other water resource related topics, the watershed districts and soil and water conservation districts under their general powers as set out in Chaps. 112 and 40 respectively, of the Minnesota Statutes, empower these two special districts to participate in activities which relate to the drainage of excess water from lands within their districts.

In South Dakota, Chaps. 46-20 through 46-23 of the South Dakota Compiled Laws deal with the topic of drainage. As in Minnesota most of the powers regarding the drainage of agricultural lands are granted to the various boards of county commissioners throughout the state (see Sec. 46-20-1). Also, as in the case of Minnesota, the soil and water conservation districts and the watershed districts through their grants of general powers in Chaps. 38-8 and 46-24 respectively, are empowered to participate in activities relating to drainage. Whereas it is clear that the Department of Water and Natural Resources in the State of South Dakota plays a major coordinative role in the development of water resource related projects, the specific link between the projects at local levels and the approval of these projects at the state level is not as apparent in the South Dakota Compiled Laws as it is in the Minnesota Statutes.

At the national level, the agency that has been primarily involved in drainage projects is the Department of Agriculture through the Soil Conservation Service. The Soil Conservation Service and the Agricultural Stabilization and Conservation

Service through their provision of monetary and technical support to the soil and water conservation districts and other units of local government and their general function of assisting agricultural interests have become involved in drainage projects. Since the Fish and Wildlife Coordination Act, drainage projects that receive assistance and/or sponsorship from federal agencies would have to be coordinated with the U.S. Fish and Wildlife Service. The required coordination is to ensure that such projects result in the least amount of damage to fish and wildlife habitat possible. Because of these new pieces of legislation, administrative regulations and the increasing awareness of the importance of wetlands, the federal involvement in drainage has been curtailed through executive orders.

10. Water Rights. In the overall scheme of a water resources management system, the beneficial uses of water are extremely important. Since many agencies have had experience in considering the economic aspects of the beneficial use of water, this may be one element which could be utilized in the resolution of economic inequities which sometimes result in some types of flood control measures. The climate of the study area for the most part is characterized by merely adequate annual precipitation for successful agricultural endeavors. (Fortunately, most of the annual precipitation that occurs in this study area occurs during the growing season.) This situation is further compounded by the fact that a significant portion of the study area is also characterized by inadequate and/or poor quality groundwater supplies. These factors emphasize the importance that many individuals in the study area assign to having rights to the use of water.

The system of appropriation of waters of the state of Minnesota is set out in Chap. 105 of the Minnesota Statutes. The Commissioner of the Department of Natural Resources has overall responsibility for the system of the appropriation and use of waters. A permit is required for the appropriation of almost all but domestic uses of surface and groundwaters of the state. The Department of Natural Resources is charged with the responsibility of developing rules, regulations, training programs, and information sufficient to appropriately and intelligently allocate the water among the potential water uses. It is to be noted that Sec. 105.417 M.S. places limits on the appropriation of waters and recognizes the importance of such things as continued conservation of water resources, in-stream uses, the preservation of fish and wildlife habitat, designated trout streams and other natural resources.

In South Dakota the system of the adjudication and administration of water rights is similar to Minnesota and is described generally in Chap. 46-10 of the South Dakota Compiled Laws. The appropriations of waters in South Dakota is also handled on a permit basis by a division of the Department of Water and Natural Resources. There are other chapters within Title 46 of the South Dakota Compiled Laws which contain elements essential for a complete understanding of the water rights system within South Dakota. Most of these elements are included in the first five chapters of Title 46 (i.e., 46-1 through 46-5 SDCL). An excellent review of the system of water rights in the State of South Dakota is contained in the "Legal and Institutional Arrangements" section of the South Dakota Water Plan (Vol. II-E, Sec. 1). A copy of this source document is submitted with this report.

The allocation of water rights is a state responsibility and has not been delegated by the states to the federal government. Although the federal courts and several federal

agencies do, from time to time, become involved in issues concerning the allocation of water rights, there are no federal legislative enactments involving this topic applicable to the study area.

11. Coordination/Integration. There are several different subject areas covered in the first 10 topics discussed above. These ten topics are all related as parts of a system of water resources management. It is often true that the various agencies participating in these ten subject areas do not coordinate with the other agencies that participate in similar activities. Many times this situation seems to be unavoidable as there are different funding sources for different activities and different funding sources for different types of agencies. There are, nevertheless, some mechanisms which have been provided in legislative enactments which allow and even encourage greater cooperative relationships among agencies participating in the planning for, and management of, water resources.

Aside from the comprehensive "Water and Related Land Resource Planning" efforts discussed in the topic no. 2 above, there are several other mechanisms within the laws of Minnesota which encourage or facilitate the integration of the various activities included in water resource management and the coordination among the various agencies which participate in the management of water resources. In Secs. 16D.02 through 16D.04 of the Minnesota Statutes, there are several references to the policy of the state to encourage the coordination among "state plans, functions, programs, and resources" (Sec. 116D.02). In Sec. 116.03 the following language appears:

> ACTION BY STATE AGENCIES. Subdivision 1. The legislature authorizes and directs that, to the fullest extent practicable the policies, regulations, and public laws of the state shall be interpreted and administered in accordance with the policies set forth in Secs. 116D.01 to 116D.06.

SUBD. 2. All departments and agencies of the state government shall:

(a) On a continuous basis, seek to strengthen relationships between state, regional, local and federal-state environmental planning, development, and management programs;

(b) Utilize a systematic, interdisciplinary approach that will insure the integrated use of the natural and social sciences and the environmental arts in planning and in decision making which may have an impact on man's environment; as an aid in accomplishing this purpose there shall be established advisory councils or other forums for consultations with persons in appropriate fields of specialization so as to ensure that the latest and most authoritative findings will be considered in administrative and regulatory decision making as quickly and as amply as possible;

This is a rather broad policy statement and is similar to language found in the National Environmental Policy Act. This policy can be implemented through the comprehensive water resource planning activities described above in Sec. 3.2. Other mechanisms are also available for the application of this policy. In Sec. 462.391 of the Minnesota Statutes, there is a requirement that "Each city, town, county, watershed district, and soil conservation district, all or part of which lies within the region (i.e., of the regional development commission), shall submit to the commission, for comment and recommendation, its long term comprehensive plans or any matter which in the judgment of the commission has a substantial effect on the regional development..." There are also two statutes in the Minnesota Laws which allow for the joint exercise of powers among units of government. Sec. 471.59 authorizes the joint exercise of any power common to the contracting parties and Sec. 112-67 authorizes the managers of the watershed districts to contract or enter into other agreements with various entities including federal, state and local governmental units for

cooperation or assistance in various types of water resource related activities.

South Dakota too has statutory provisions for the joint exercise of powers by units of government. These statutes appear in Chap. 1-24 of the South Dakota Compiled Laws. The general policy of South Dakota to achieve a coordinated and integrated water resource management system appears in Secs. 46-17A-1 and 2 and has already been discussed in this section.

Integration and coordination among the federal agencies has been facilitated in recent years by the far reaching coordination requirements of the National Environmental Policy Act and the Fish and Wildlife Coordination Act. The Corps of Engineers, the SCS, and other Divisions of the Department of Agriculture such as CES, ASCS, FHA and others are all authorized to cooperate with various units of state and local government in the conduct of water resource related projects.

The above discussion of the eleven water resource related topics is confined to a general identification of the pertinent legislative enactments and brief discussion of the relevant powers of the various agencies involved at the local, regional, state and federal levels. In addition to the major legislative enactments noted above, there are many court cases and an entire body of administrative law (e.g., executive orders, rules, regulations, etc.) which are also important for a complete understanding of the functional responsibilities of the various agencies. A more expansive view of the functions of the various agencies involved in water resource management in the study area is provided in this report in the section entitled "Organizational Responsibilities".

## 4.3 Implications for the Water Resources Management System

The policies and provisions set out in the legislative enactments present several important considerations relevant to the institutional composition of a water resources planning and management system. In order to examine these implications, it is necessary to view the entire collection of agencies that have functional responsibilities in the area of water resources management in the study area as one management system. Within that overall institutional system there may actually be several different specific alternative institutional configurations that would constitute a water resources management system. At a later point in the overall 639 Study when specific alternative flood control/resource management water measures are developed, it will be appropriate to examine specific institutional systems. At this point in the overall 639 Study, it is only appropriate to examine the general capabilities of the total institutional system.

The policies and provisions of the major legislative enactments can act to either constrain or facilitate the effective operation of a water resources management system. Perhaps the first potential implication that needs exploration is the very basic concept of a water resources management system. As noted in the descriptive inventory of institutions elsewhere in this report, there is a great jurisdictional problem raised by the fact that area from two states is included in the study area. The review of the legislative enactments, however, indicates that cooperation and joint action among governmental agencies is authorized at all jurisdictional levels. The constraints to joint cooperation among governmental units from the two states do not exist in the legislative enactments. In order for a system to function as a system, its various parts or components must be integrated. The legislative enactments at all levels contain substantial encouragement for the component agencies which are

the parts of the water resources management system to coordinate their actions and to perform all their functions in accordance with specified policy. This legislative encouragement, if followed, would facilitate integration of the water resource management system if there is similarity in the legislative policy of all three jurisdictions (i.e., United States, Minnesota, and South Dakota).

The basic policy statements regarding water resources contained in the legislative enactments of the U.S. Congress and the legislatures of Minnesota and South Dakota are similar. The fact that this similarity exists adds another implication to consider in addition to supporting the integration of the water resources management system. The additional implication is this: the fact that there is basic similarity among the legislative enactments indicates the importance of these basic policy objectives and leads toward the conclusion that the design of a water resource management must support these policy objectives. In order to demonstrate the similarlity among the various water policy statements and to determine the potential impacts on the design of a water resources management system, the basic policy of the three jurisdictions is compared below.

Perhaps the single most important statement of policy at the national level is contained in the National Environmental Policy Act. Sec. 4332 of Title 42 of the U.S. Code states in pertinent part that:

"... all agencies of the Federal Government shall--

> (A) utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on man's environment;
>
> (B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by subchapter II of this chapter, which will insure that presently unquantified

environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations;

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on--

(i) the environmental impact of the proposed action,
(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
(iii) alternatives to the proposed action,
(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved...

(E) study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources...

In a technical sense, the mandate of this law is not directly applicable to state agencies. However, as a practical matter, federal funding and technical and other assistance from federal agencies plays important parts in a great majority of major state projects; and in these cases the legal mandate of the NEPA applies. Boiled down to a succinct, albeit oversimplified, statement, the policy statement above requires that environmental factors of all types be given equal weight in the decision making process--not just the immediate environmental consequences, but also the long-term impacts as well. This mandate has fairly well permeated the rules and regulations governing the actions of other federal agencies. The result

is that whenever a federal agency is involved in a project and/or activity which has potentially significant effects on the human environment, all types of environmentally related information must be collected, analyzed and considered in the decision-making process. Ordinarily this process results in the formulation of environmentally sensitive alternatives early in the process. Further, in instances in which there are significant conflicts between the recommended project alternative and environmental impacts, there is a duty to develop appropriate alternatives.

In South Dakota the policy statements which are most appropriate to water resources management considerations are found in section 46-17A-1; it is quoted in part below:

> ...The general health, welfare and safety of the people of the state of South Dakota are dependent upon the conservation, development, management, and optimum use of all water resources within the state's boundaries. To achieve this objective and protect the waters of South Dakota from diversion out of state, it is essential that a co-ordinated, integrated, multiple use water resource policy be formulated and a plan and system developed to activate this policy as rapidly as possible. It is in the public interest that these functions be carried out through a co-ordination of all state agencies and resources.

This policy statement is neither as specific nor as far-reaching as that contained in the National Environmental Policy Act. Whereas there is no language to emphasize consideration of long-term consequences, this approach would be compatible with the "optimum use" directive. Whereas the requirement that all types of environmental factors be considered is missing, the "co-ordination of all state agencies and resources" would facilitate this result.

In the Minnesota Statutes there is a chapter devoted to "State Environmental Policy" (Chapter 116D MS). Much of the

language in sections 116D.03 and 116D.04 closely parallels the language from 42 USC 4332 quoted above. Subdivision 6 of Sec. 116D.04 is particularly specific in its mandate:

> Subd. 6. No state action significantly affecting the quality of the environment shall be allowed, nor shall any permit for natural resources management and development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct.

In interpreting this section, it must be understood that a "permit for natural resources management and development" is required for: flood plain management ordinances (§104.04 MS); appropriation and use of waters (§105.41 MS); construction of dams, alteration of shorelines and water ways (§105.42 MS); establishment of lake levels (§105.43 MS); irrigation of agricultural lands (§105.44 & 113.02 MS); and other activities (see Subd. 5, Sec. 116D.04 MS). As further evidence of Minnesota's policy of using feasible and prudent alternatives to prevent the pollution, impairment or destruction of its water resources, consider the language of §104.01 MS (Subd. 3 & 4) quoted below:

> Subd. 3. It is the policy of this state and the purpose of Secs. 104.01 to 104.07 to reduce flood damages through flood plain management, stressing nonstructural measures such as flood plain zoning and flood proofing, and flood warning practices. It is the policy of this state and the purpose of Secs. 104.01 to 104.07 not to prohibit but to guide development of the flood plains of this state consistent with the enumerated legislative findings to provide state coordination and assistance to local governmental units in flood plain management, to encourage local governmental

> units to adopt, enforce and administer sound flood plain management ordinances, and to provide the commissioner of natural resources with authority necessary to carry out a flood plain management program for the state and to coordinate federal, state, and local flood plain management activities in this state.
>
> Subd. 4. In furtherance of the policy stated in subdivision 3, the legislature further declares that flood plain management ordinances are to be given primary consideration in the reduction of flood damage in Minnesota and that alternative methods for reducing flood damage may not be carried out before adoption of flood plain management ordinances by local governmental units. Structural projects which have the purpose of controlling floods are to be considered only as elements of a flood plain management program.

Of course, the language above relates only to activities related to the reduction of flood damages and to flood control. However, it is to be remembered that the damage in the study area resulting from flooding is a central reason for the conduct of the overall 639 Study of which this institutional analysis is a part.

The similarity among the basic and most controlling policy statements of the three major jurisdictions is obvious. The additional institutional implication is that any water resources management system designed for the study area will have to be capable of (1) collecting information on a variety of environmental topics, (2) analyzing that information competently, (3) developing various types of environmentally sound alternatives, and (4) considering all factors carefully in a rational decision making process. An integrated water resources management system that is capable of all four of these functions must be a rather comprehensive system. Also, because of the policy expressed in §104.01 MS stressing the use of "nonstructural measures" in flood control, a water resources management system that would support the objectives of the overall 639 Study in

the study area would have to be capable of implementing and administering the various forms of nonstructural flood damage prevention/reduction measures available.

The foregoing review of the legislative enactments highlights another impact on the composition of a water resources management system. In reviewing the water resources planning aspects of the existing system, it is noted that there are several agencies in both Minnesota and South Dakota with responsibilities for water resource related planning. It is also noted that this planning occurs at all of the various hierarchial levels of government: local, regional and state. In Minnesota there are several state level and large regional area agencies charged with the responsibility of developing plans that affect water resources: State Planning Agency, Pollution Control Agency, Water Planning Board and Southern Minnesota Rivers Basin Board to name a few. Each agency develops its own plan. This is duplication. The legislative charge to the State Planning Agency and to the Water Planning Board regarding water resource planning would seem to be extremely similar. The fact that the director of the State Planning Agency is not a member of the Water Planning Board seems to be too great an omission to be an oversight--perhaps there was a political problem. Political problem or not, the comprehensive planning efforts need to be coordinated in order to allow the institutions to operate as a single system and in order to move toward the "integrated system" favored in the legislative policy statements.

At the state level in South Dakota, there are also several agencies that participate in the development of comprehensive plans including water resources. The major difference between South Dakota and Minnesota is that in South Dakota there is only one plan developed even though

there are several state level agencies working on the development of the plan.

In both Minnesota and South Dakota the relationships between the comprehensive planning that occurs at the state and regional level and the water resources related planning that occurs at the local level is not apparent from a review of the legislative enactments. The planning perspectives from the local, regional and state-wide vantage points are valuable in the effective operation of an integrated water resources management system. However, the value of these different perspectives is lost if they cannot be coordinated, or integrated, to the extent that they harmonize and contribute to the betterment of the planning at each level. Informal relationships between the various levels of planning may exist, however, it is more desirable for a more formal relationship to be established.

There are several potential conflicts among the various legislative enactments which have been reviewed previously. At the programmatic level the most apparent potential conflict[1] is that between the programs which allow for the drainage of waters from the land and those programs which encourage the preservation of wetlands and even the creating of wetland areas. This particular potential conflict can be used as a vehicle to discuss some other types of conflicts, but first some background on the drainage/wetlands conflict.

Draining excess water from agricultural land means more arable land for the farmer, more crops, less trouble, better yield for the time invested, etc. Preserving the "excess" water in wetlands means fish and wildlife habitat, a groundwater recharge area, a holding area for flood waters, etc. The

[1] This potential conflict is actually a very real issue in the study area and is covered again in Sec. 6 of this report.

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INSTITUTIONAL ANALYSIS: FLOOD CONTROL STUDY FOR THE UPPER MINNE--ETC(U)
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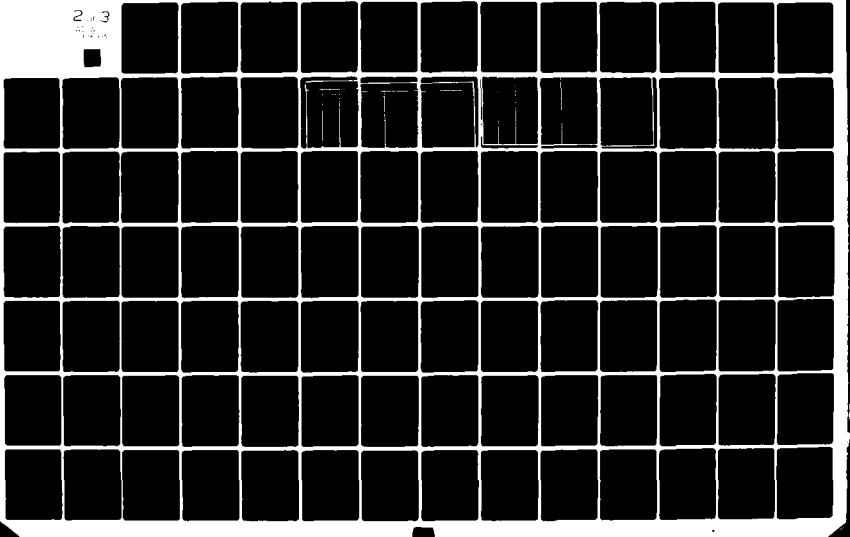

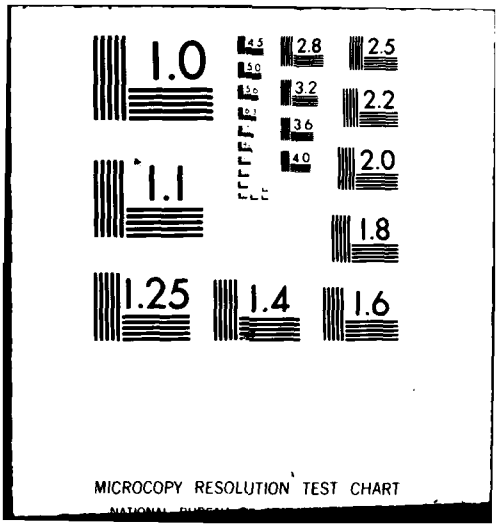
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MICROCOPY RESOLUTION TEST CHART

potential conflict tends to polarize several types of interest groups, not the least of which are those found in various state and federal agencies. The U.S. Department of Agriculture is interested in increasing agricultural production. The county extension agent, the ASCS, the SCS and other direct and indirect representatives of USDA have assisted the farmer in various types of drainage projects. The USDA also supports a water banking program and other programs for the preservation of wetlands. The U.S. Fish and Wildlife Service is a vociferous advocate for preserving and creating suitable habitat for many species of fish and wildlife. Wetlands in the study area happen to be ideal for many valuable species of wildlife; there are valuable trout streams in the study area as well. These federal agencies have their counterparts in the two states. There is a Department of Agriculture in both states. The soil and water conservation districts are coordinated through the Division of Conservation within the Department of Agriculture in South Dakota. In Minnesota the soil and water conservation districts are coordinated by the state soil and water conservation board within the Department of Natural Resources. In Minnesota the Division of Game and Fish is a part of the Department of Natural Resources. In South Dakota there are two separate departments: Department of Water and Natural Resources and Department of Game, Fish and Parks. Both South Dakota's Department and Minnesota's Division work closely with the U.S. Fish and Wildlife Service.

The interests that each of these agencies have in advocating and forwarding their position are legitimate. Resolving the differing points of view is sometimes easy and sometimes very difficult depending upon the facts of the situation. There are very real economic interests involved here. Some of these economic interests are relatively easy to quantify, at least in the short term (particularly the

agricultural interests). Other economic interests are exceedingly difficult to quantify--more often than not the environmental concerns, especially long-term interests. These interests and others,which have not yet been measured in economic terms,need to be wisely balanced. A forum, or perhaps several forums, are needed to attempt to resolve these types of issues in the study area. The Water Resources Commission and the Environmental Quality Board exist in Minnesota; the Natural Resources Cabinet Subgroup exists in South Dakota. No forums with jurisdiction over the entire study area exists aside from the federal courts. It is submitted that the federal court system as now constituted is an inappropriate forum for the function described. A water resource management system that would serve the entire study area must address this issue.

This concludes the report section on the review of water and related land resources legislation. Many of the issues treated in other sections of this report relate to, and/or expand, the issues and topics included in this section. This approach is necessary since in an institutional analysis the various factors such as legal powers, agency size and staffing characteristics, issue orientation of agencies, agency effectiveness, etc. are not really separable, but actually very much interrelated.

# 5. ORGANIZATIONAL RESPONSIBILITIES

In Sec. 3 of this report the various institutions which participate in water resource mangement in the study area are listed and their general characteristics explained. In Sec. 4 of this report the legal environment in which these agencies operate is reviewed. In this section emphasis is placed on an explanation of the various functions which are performed by the existing institutions. The functions listed and explained are, of course, limited to those which relate to water resources management. To facilitate a more thorough analysis, the listing of water resource related functions is not confined to those which were discovered through empirical analysis; rather the list of functions was developed using a more normative approach.

The list of water resource related functions was developed through the use of several techniques. The review and study of water resources literature, the application of system theory, and the use of several techniques involved with the development of "relevance trees" were utilized in the development of the functions related to management of water resources. After its initial development, the list of functions was reviewed and modified through various discussions with representatives of the U.S. Army Corps of Engineers and Soil Conservation Service. Once an acceptable list of water resource management related functions was developed, research began on identifying those agencies which performed each of the functions listed.

Several techniques were utilized in identifying the agencies which performed each of the listed functions. These techniques included personal interviews with representatives of many of the agencies and review of the enabling legislation relating to the agencies involved. The results of this

research is displayed in this section of the report in matrix format and is analyzed in this and following sections of the report.

## 5.1 Water Resource Management Systems

In reports which have preceded this one in the overall 639 Study effort, the water resources needs and problems within the study area have been explored and prioritized. In the enumeration which appears below, the major water resource related problems and needs perceived in the study area are arranged in groups according to their perceived relative priority.[1]

Erosion and Sedimentation
Water Quality
Flooding

---

Wet Agricultural Soils
Inadequate Water Supply
Inadequate Fish & Wildlife Habitat

---

Inadequate Recreational Opportunities
Potential for Hydropower

This list of water resource related topics addressed in the overall 639 Study is provided to indicate the scope of the issues and topics included under the general topic of water resources. The priority perceived by the local residents and others involved in the 639 Study is less important. It is important to note that even though some specific topics are of special interest, all aspects of water resources management are represented in this list of topics: water quantity, water quality, and the effects of water on other elements of the physical, economic, and social environment. This

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[1] Upper Minnesota River Subbasins Study (PL 87-639), (Stage I Report: Alternatives), U.S. Dept. of Agriculture, Soil and Water Conservation Service, and Dept. of the Army, St. Paul District Corps of Engineers, January 1980, pp. 5-9.

institutional analysis must also consider all aspects of the management of water resources.

In accordance with the definition of institutional analysis, it is necessary to develop a thorough understanding of the discrete functions that must be performed by institutions in order to effectively manage water resources. In the development of this understanding, it is important to have a basic understanding of the elements of a management system and the manner in which they interact. It is helpful to use a simple model to illustrate, in conceptual terms, the relationships with which the management structure must deal. A graphic representation of such a model appears in Fig. 5.1.

Using the terms in Fig. 5.1, the purpose of the management structure is to manage (control , coordinate, etc.) the various "activities and processes" that use and/or affect water resources within the study area. Further, the management system must act in such a way that the "products" (e.g., agricultural crops, livestock production, tourist trade, fishing and hunting) contribute to the "quality of life" of the residents to the maximum possible extent, ensuring at the same time that the continuing consumption of water resources and the "residuals and wastes" generated in the production processes do not degrade the natural environment. In fact, the result of the efforts of the management structure could be the improvement of the natural environment, which, in turn, contributes to the improvement of the "quality of life". This is, of course, an oversimplification, but the concept is valuable to understanding of a management system.

The quality of the human environment is dependent in part on the quality of the natural environment. In the study area the quality of the natural environment is determined to a significant degree by the condition of water resources, which,

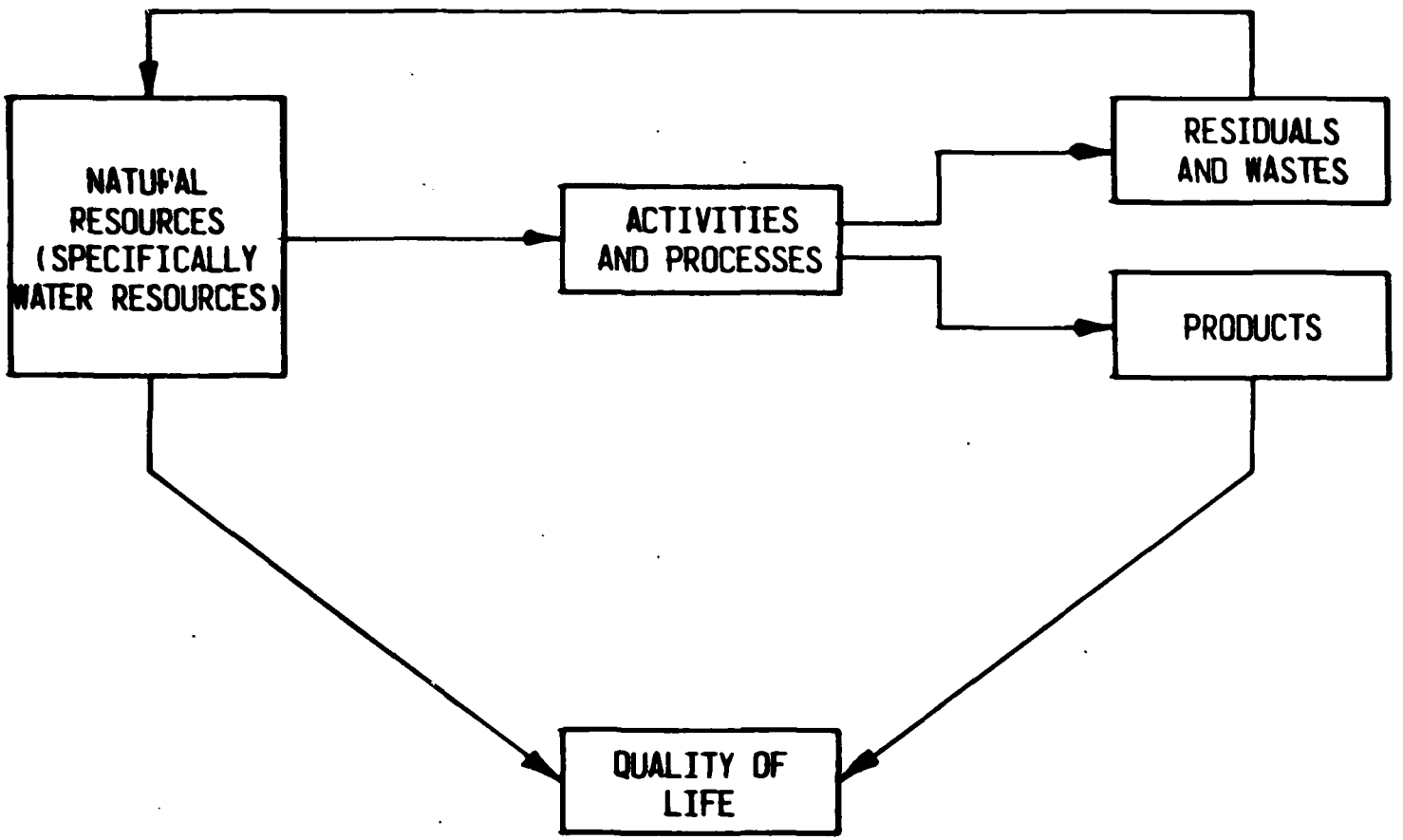



Figure 5.1. Quality of Life Relationships

in turn, is determined by the effectiveness of the water resources management system. Yet it is also true that the water resources of the study area are used to produce many products which also improve the quality of life. It follows that in order for the management structure to accomplish its objective, it must measure in some rather definite way both the quality of life and the quality of the natural environment, and these considerations must be used in its formulation of management policy. In order to develop a means of measuring these factors, a significant portion of the efforts of the management system must be devoted to collecting and organizing various types of information, which can be divided into four basic categories: (1) the physical system, (2) the social system, (3) the economic system, and (4) the political system.

It is also necessary to determine the interrelationships among the various types of information, the importance of each in the overall management process, and the key variables within each system which facilitate change. Outline of plans to achieve the desired balance between improving the quality of life and preserving the natural environment (e.g., water resources) will also have to be developed. These functions are usually categorized under the broad topic of "planning and design".

It is important to note that the management structure must employ some measure to relate water resources management to the topic of the quality of life. There exist several organizations which actually do interpret what certain policies in the management of water resources mean in terms of the quality of life, although the processes used differ from organization to organization. These "organizations" consist of the various publics, private interest groups, the public at large, and other social and political institutions. One

method of obtaining information on the relationship between water resources management policies and the quality of life is to provide a forum through which these groups can convey this information to the management structure.

Once this and other informational "inputs" have been received by the management structure, the processes of decision making can lead to the creation of sound management policies. The next step will be to design implementation strategies composed of a series of action programs which will accomplish the goals of these policies. These action programs, along with the management policies, will have a direct effect on the manner in which the water resources are utilized and will affect the health of the hydrological system within the study area. The quality of the hydrological system will also affect the economic, political and social institutions in the study area. Thereafter, through the process generally known as "feedback", the management system will receive additional information (through its various monitoring systems) which provides a basis for evaluating the effectiveness of the management policies and implementation strategies. These monitoring systems include not only sampling programs designed to ascertain the physical properties of the water resources, but also public opinion related to management policies and their results.

Another way of explaining the functions of the management system is to represent its activity in terms of the cybernetic diagram appearing in Fig. 5.2.

The "black box" labeled "conversion mechanism" represents the management structure; its objectives have been discussed above. The black box labeled "withinputs" is included to represent the individual characteristics and biases of those

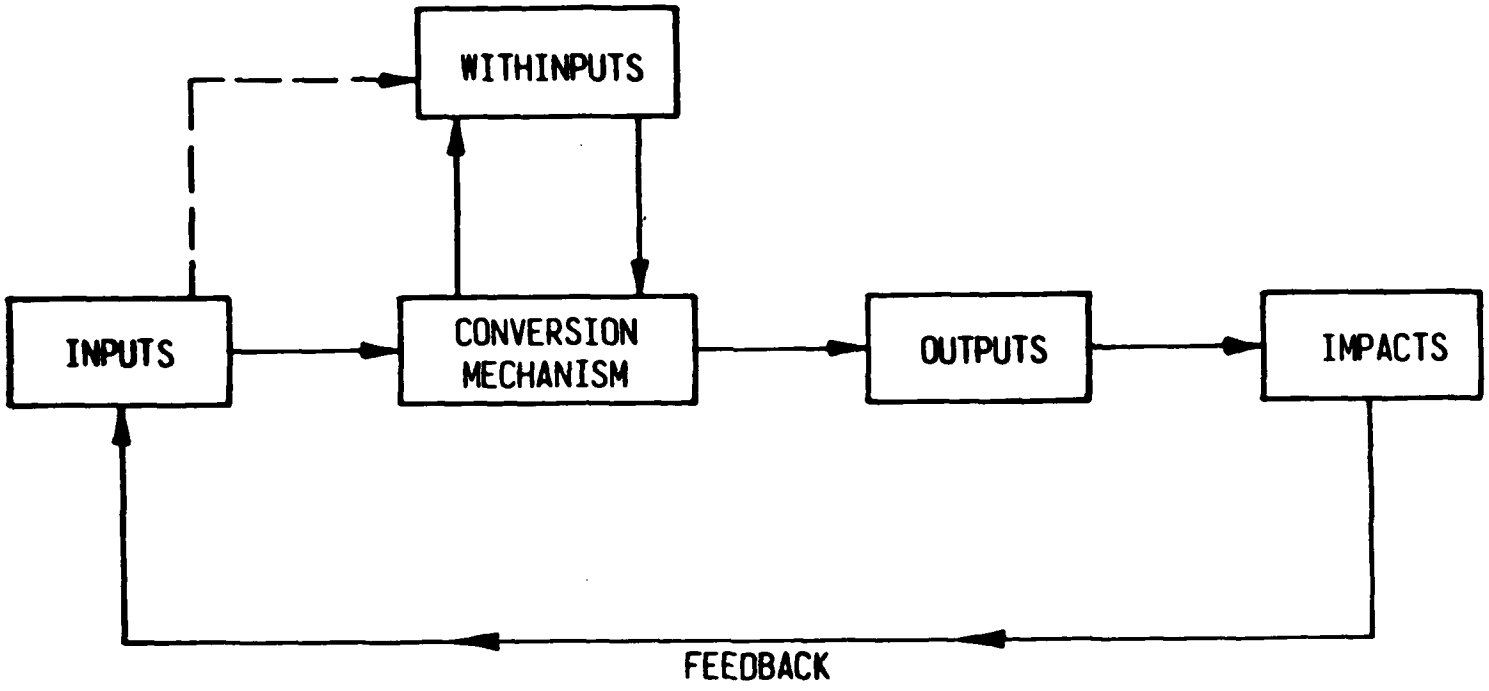



Figure 5.2. The Management System: A Cybernetic Model

who make up the management structure. The other terms used in the diagram have already been discussed.

The preceding discussion mentions three general categories of functions into which all management activities can be grouped: (1) information gathering and monitoring, (2) planning/design, and (3) administration or management. In order to apply the general ideas about management systems presented above to the specific considerations of this phase of the study, it is necessary to develop a more detailed listing of the functions required to manage the water resources of the study area. Using these three categories as the major divisions, an outline of the institutional functions necessary for effective water resource management has been prepared, and appears on the following pages.

In coming to an understanding of the list of water resource management functions, it is important to remember to interpret the listed function within the context of the major category and lesser subcategories of which it is a part. For example, the phrase "land use" appears seven times in the list of functions. Each time a different function is being described although each of the seven functions relates to the subject of land use. In the first instance, "land use" is used to describe the function of gathering data about the manner in which land is used presently. In the second instance the reference to "land use" designates the function of forecasting future land use as a part of the analysis which occurs in water resource planning. The third time "land use" refers to the function of formulating land use alternatives. The fourth time, it refers to the activity of evaluating the present land use management techniques that relate to water resources. The fifth reference identifies the activity of assessing the land use aspects of the alternative water resource management systems formulated. The sixth reference

identifies the function of actually selecting the land use management techniques appropriate for the water resource management objectives. The seventh time "land use" refers to the actual administration of land use regulations. The example above should assist the reader in developing an understanding of each of the functions appearing on the list which follows and on the institutional analysis matrix which appears later.

I. INFORMATION AND MONITORING

A. Data Collection

Water Flows-Surface
Potentiometric Surface-Groundwater
Water Quality-Surface
Water Quality-Ground
Flooding Incidence/Damages
Soil Erosion
Conservation Measures (Water)
Agricultural Production/Economic Base
Population/Demographics
Land Use
Management Systems
Financial Systems
Social Systems

B. Organization of Data

Determination of Data Needs
Coordination of Data Gathering Efforts
Organization of Data in Format Usable by All

C. Information Systems

Development
Repository-Noncomputer Based
Repository-Computer Based
Development of Data Communication Systems
Monitoring Systems

II. PLANNING/DESIGN

A. Analysis

1. Forecasting

Water Quantity/Water Demands
Water Quality
Flood Damage
Soil Erosion
Agricultural Production/Economic Base
Population/Demographic
Land Use
Technology for Flood Control
Technology for Pollution Control
Technology for Agricultural Production

2. Evaluation Criteria

Present Water Resource Management System
Models and Simulations
Alternatives

B. Modeling and Simulation

Physical (e.g., Geohydrologic, etc.)
Agricultural Production/Economic Base
Institutional

C. Alternative Formulation

1. Water Resources

Water Retention/Detention
Land Treatment (BMP's)
Land Use
Pollution Control
Water Quantity

2. Implementation

Citizen Participation
Regulation
Systems Development
Management Systems
Financing Systems

D. Assessment

1. Present Water Resources Management Systems

Water Retention/Detention
Land Treatment (BMP's)
Land Use
Pollution Control
Water Quantity
Citizen Participation
Regulation
Systems Development
Information Systems
Planning/Design Efforts
Management Systems

2. Alternative Water Resources Management Systems

Water Retention/Detention
Land Treatment (BMP's)
Land Use
Pollution Control
Water Quantity
Citizen Participation
Regulation
Systems Development
Information Systems
Planning/Design Efforts
Management Systems

## III. MANAGEMENT

### A. Direction

#### 1. Initial

Problem Identification
Formalize Goals and Objectives
Articulation of Basic Policy

#### 2. Alternative Selection

##### a. Water Resources

Water Retention/Detention
Land Treatment (BMP's)
Land Use
Pollution Control
Water Quantity

##### b. Implementation

Citizen Participation
Regulation
Systems Development
Management Systems
Financing Systems

### B. Coordination

#### 1. Information and Monitoring

Information Systems
Monitoring Specific Projects & Programs

#### 2. Planning/Design

Analysis
Modeling & Simulation
Alternative Formulation
Assessment

#### 3. Management

##### a. Direction

Goals, Objectives, and Basic Policy
Alternative Selection

##### b. Administration

Financing
Systems Development
Operation and Maintenance
Regulation

III. MANAGEMENT (Contd.)

C. Administration

1. Financing

a. Administration and Borrowing

Purchasing and Contracting
Budgeting
Grants
Borrowing
Debt Limitation

b. Revenues

Taxation
Special Assessment
User Charges
Fees
Limitation

2. Systems Development
Construction of Facilities
Acquisition of Facilities
Leasing, Use Sharing of Facilities

3. Operation and Maintenance

Operation of Facilities
Maintenance of Facilities
Establishment of O&M Standards
Quality Control

4. Regulation

a. Water

Water Retention/Detention
Wetlands
Drainage
Clearing and Snagging
Irrigation
Sources (i.e., withdrawals)
Water Conservation
Permitting-Discharge, etc.
Pollution Control Measures

b. Land

Comprehenshve Planning
Land Treatment (BMP's)
Land Use
Wetlands
Drainage
Preservation and Conservation
Relevant Purchase/Eminent Domain Powers

c. Other

Solid Waste
Air Pollution

III. MANAGEMENT (Contd.)

5. Assistance

a. Agriculture

- Analysis and Testing
- Information, Education, Technical Assistance
- Cost Sharing
- Incentive Programs

b. Industry

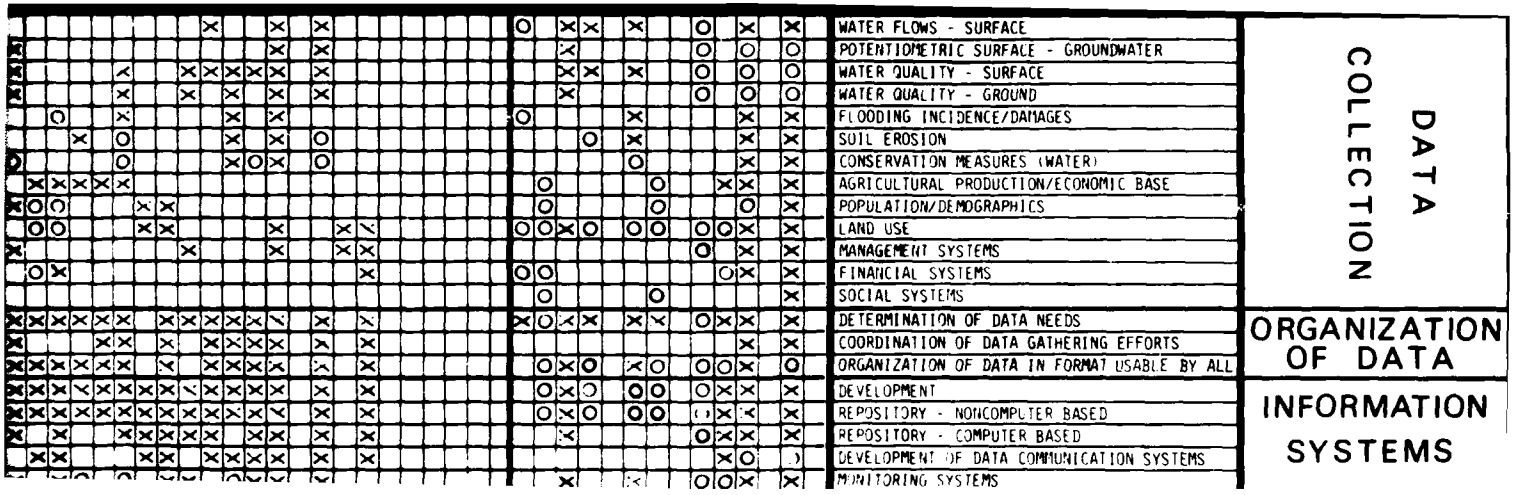
- Information, Education, Technical Assistance
- Incentives

## 5.2 Functional Roles of Existing Institutions

The various organizations with jurisdiction in the study area have been listed and briefly discussed in a previous section of this report. Together, the organizations and the water resource related functions which they perform constitute the primary factors, or variables in this institutional analysis. The first step in analyzing these factors together is to study the relationship of existing institutions to the functions which must be performed in order to manage the water resources of the study area.

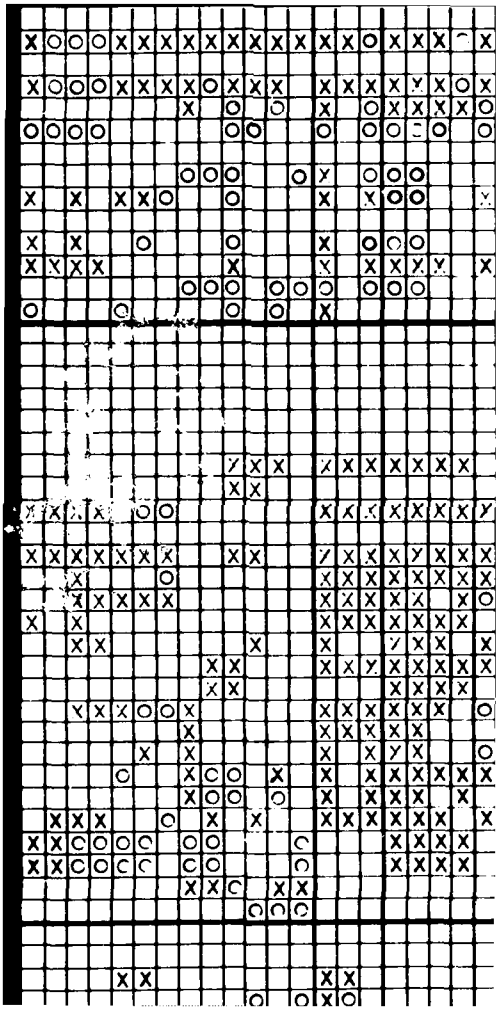
A matrix has been prepared by rearranging the list of functions and organizations (see Institutional Analysis Matrix in Fig. 5.3). Management functions have been listed across the top of the matrix, and the existing institutions have been listed down the left-hand side. Appropriate notation in the body of the matrix indicates the degree of responsibility of each agency or organization for each of the institutional functions. In this manner, it is possible to indicate graphically, functional responsibility within the water resource management system. Although it is anticipated that some errors are contained in this matrix, the information is accurate enough for the purposes of this institutional analysis and will be updated and revised throughout the course of the 639 Study.

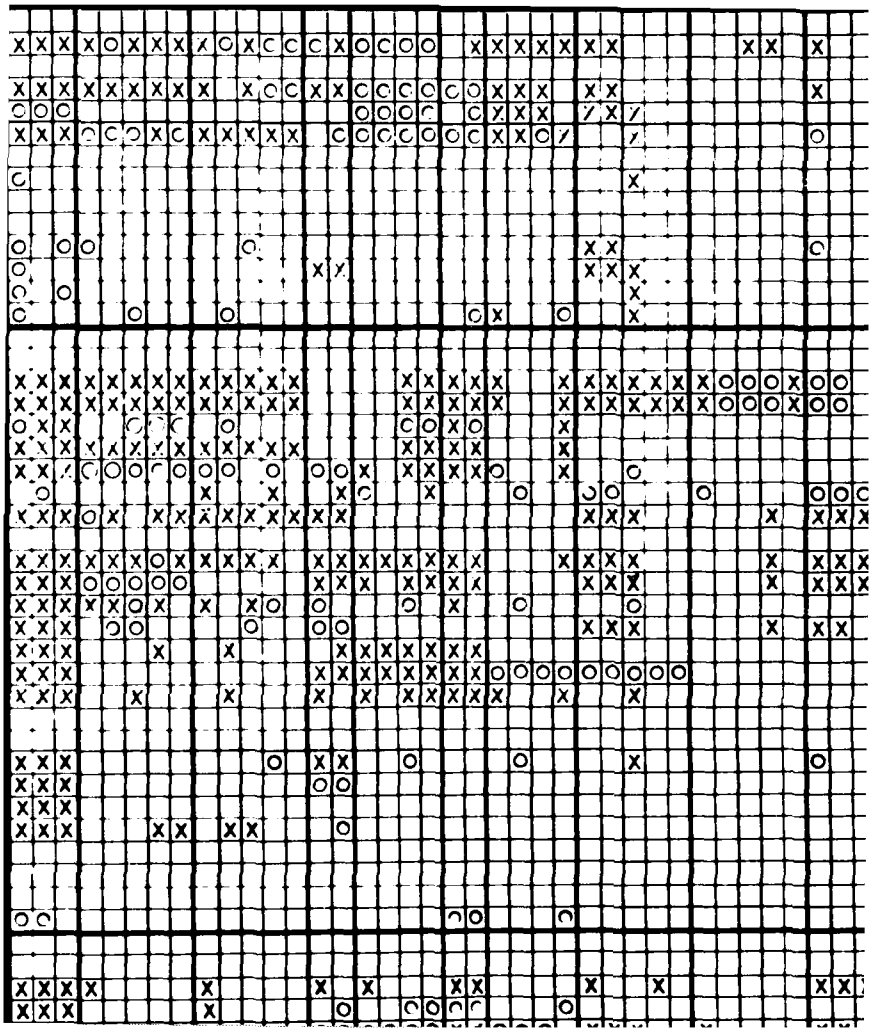
It should be noted at this point that the institutional analysis matrix must be studied closely to obtain full benefits from the information presented. Although a useful graphic tool, the amount and complexity of the information presented in the matrix makes it far less simple to understand than a bar chart. The purpose of the next portion of this report is to explain some of the most significant observations regarding institutions in the study area. Most of these observations discussed can be visually supported by the

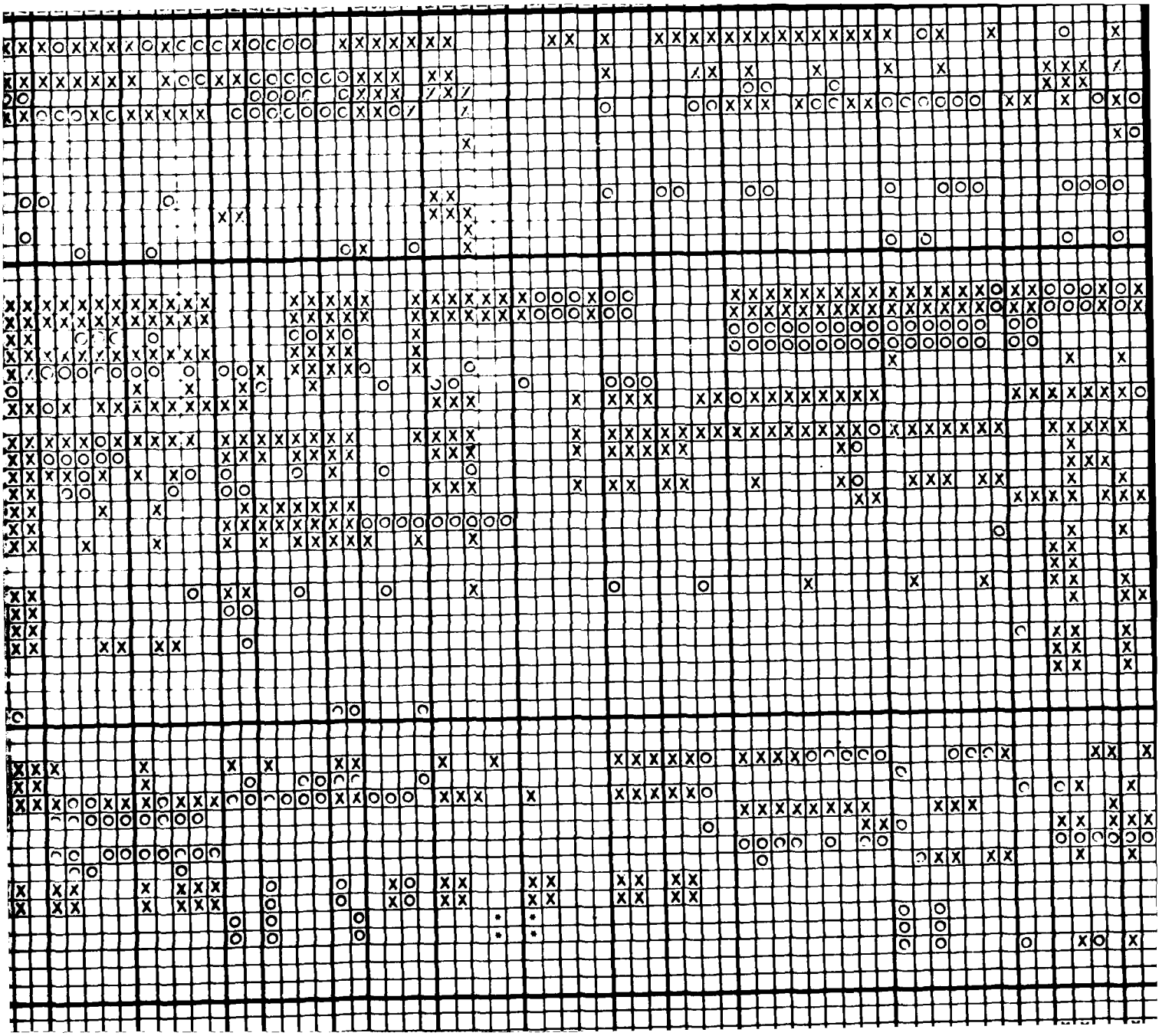

WATER FLOWS - SURFACE
POTENTIOMETRIC SURFACE - GROUNDWATER
WATER QUALITY - SURFACE
WATER QUALITY - GROUND
FLOODING INCIDENCE/DAMAGES
SOIL EROSION
CONSERVATION MEASURES (WATER)
AGRICULTURAL PRODUCTION/ECONOMIC BASE
POPULATION/DEMOGRAPHICS
LAND USE
MANAGEMENT SYSTEMS
FINANCIAL SYSTEMS
SOCIAL SYSTEMS
DETERMINATION OF DATA NEEDS
COORDINATION OF DATA GATHERING EFFORTS
ORGANIZATION OF DATA IN FORMAT USABLE BY ALL
DEVELOPMENT
REPOSITORY - NONCOMPUTER BASED
REPOSITORY - COMPUTER BASED
DEVELOPMENT OF DATA COMMUNICATION SYSTEMS
MONITORING SYSTEMS
DATA COLLECTION
ORGANIZATION OF DATA
INFORMATION SYSTEMS

| ER CES | IMPLEMENTATION | PRESENT WATER RESOURCES MANAGEMENT SYSTEMS | ALTERNATIVE WATER RESOURCES MANAGEMENT SYSTEMS | INITIAL | ALTERNATIVE SELECTION | | INFORMATION AND MONITORING | PLANNING / DESIGN | MANAGEMENT | | FINANCING | | SYSTEMS DEVELOPMENT | OPERATION MAINTENANCE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | WATER RESOURCES | IMPLEMENTATION | | | DIRECTION | ADMINISTRATION | ADMINISTRATION AND BORROWING | REVENUES | | |
| POLLUTION CONTROL | WATER QUANTITY | WATER RETENTION/DETENTION | WATER RETENTION/DETENTION | PROBLEM IDENTIFICATION | WATER RETENTION/DETENTION | CITIZEN PARTICIPATION | INFORMATION SYSTEMS | ANALYSIS | GOALS, OBJECTIVES, AND BASIC POLICY | PURCHASING AND CONTRACTING | CONSTRUCTION OF FACILITIES | | OPERATION OF FACILITIES | |
| CITIZEN PARTICIPATION | REGULATION | LAND TREATMENT (BMP'S | LAND TREATMENT (BMP'S | FORMALIZE GOALS AND OBJECTIVES | LAND TREATMENT (BMP'S) | REGULATION | MONITORING SPECIFIC PROJECTS & PROGRAMS | MODELING & SIMULATION | ALTERNATIVE SELECTION | BUDGETING | ACQUISITION OF FACILITIES | SPECIAL ASSESSMENT | MAINTENANCE OF FACILITIES | |
| REGULATION | SYSTEMS DEVELOPMENT | LAND USE | LAND USE | ARTICULATION OF BASIC POLICY | POLLUTION CONTROL | SYSTEMS DEVELOPMENT | | ALTERNATIVE FORMULATION | FINANCING | GRANTS | LEASING, USE SHARING OF FACILITIES | USER CHARGES | | |
| SYSTEMS DEVELOPMENT | MANAGEMENT SYSTEMS | POLLUTION CONTROL | POLLUTION CONTROL | | WATER QUANTITY | MANAGEMENT SYSTEMS | | ASSESSMENT | SYSTEMS DEVELOPMENT | BORROWING | | FEES | | |
| FINANCING SYSTEMS | FINANCING SYSTEMS | WATER QUANTITY | WATER QUANTITY | | | FINANCING SYSTEMS | | | OPERATING AND MAINTENANCE | DEBT LIMITATION | | LIMITATION | | |
| | | CITIZEN PARTICIPATION | CITIZEN PARTICIPATION | | | | | | REGULATION | TAXATION | | | | |
| | | REGULATION | REGULATION | | | | | | | | | | | |
| | | SYSTEMS DEVELOPMENT | SYSTEMS DEVELOPMENT | | | | | | | | | | | |
| | | INFORMATION SYSTEMS | INFORMATION SYSTEMS | | | | | | | | | | | |
| | | PLANNING/DESIGN EFFORTS | PLANNING/DESIGN EFFORTS | | | | | | | | | | | |
| | | MANAGEMENT SYSTEMS | MANAGEMENT SYSTEMS | | | | | | | | | | | |

INITIAL
FORMALIZE GOALS AND OBJECTIVES
ARTICULATION OF BASIC POLICY
ALTERNATIVE SELECTION
WATER RESOURCES
WATER RETENTION/DETENTION
LAND TREATMENT (BMP'S)
LAND USE
POLLUTION CONTROL
WATER QUANTITY
IMPLEMENTATION
CITIZEN PARTICIPATION
REGULATION
SYSTEMS DEVELOPMENT
MANAGEMENT SYSTEMS
FINANCING SYSTEMS
INFORMATION AND MONITORING
INFORMATION SYSTEMS
MONITORING SPECIFIC PROJECTS & PROGRAMS
PLANNING / DESIGN
ANALYSIS
MODELING & SIMULATION
ALTERNATIVE FORMULATION
ASSESSMENT
MANAGEMENT
DIRECTION
GOALS, OBJECTIVES, AND BASIC POLICY
ALTERNATIVE SELECTION
ADMINISTRATION
FINANCING
SYSTEMS DEVELOPMENT
OPERATING AND MAINTENANCE
REGULATION
FINANCING
ADMINISTRATION AND BORROWING
PURCHASING AND CONTRACTING
BUDGETING
GRANTS
BORROWING
DEBT LIMITATION
REVENUES
TAXATION
SPECIAL ASSESSMENT
USER CHARGES
FEES
LIMITATION
SYSTEMS DEVELOPMENT
CONSTRUCTION OF FACILITIES
ACQUISITION OF FACILITIES
LEASING, USE SHARING OF FACILITIES
OPERATION & MAINTENANCE
OPERATION OF FACILITIES
MAINTENANCE OF FACILITIES
ESTABLISHMENT OF O&M STANDARDS
QUALITY CONTROL
REGULATION
WATER
WATER RETENTION/DETENTION
WETLANDS
DRAINAGE
CLEARING AND SNAGGING
IRRIGATION
SOURCES (I.E., WITHDRAWALS)
WATER CONSERVATION
PERMITTING - DISCHARGE, ETC.
POLLUTION CONTROL MEASURES
LAND
COMPREHENSIVE PLANNING
LAND TREATMENT (BMP'S)
LAND USE
WETLANDS
DRAINAGE
PRESERVATION AND CONSERVATION
RELEVANT PURCHASE/EMINENT DOMAIN POWERS
OTHER
SOLID WASTE
AIR POLLUTION
ASSISTANCE
AGRICULTURE
ANALYSIS AND TESTING
INFORMATION, EDUCATION, TECHNICAL ASSISTANCE
COST SHARING
INCENTIVE PROGRAMS
INDUSTRY
INFORMATION, EDUCATION, TECHNICAL ASSISTANCE
INCENTIVES







information presented in the matrix. (It is suggested that the reader take a moment to become familiar with the information presented in the matrix before proceeding with the balance of the narrative.)

## 5.3 Analytical Observations

Perhaps the most helpful aspects of the matrix-type display of institutional information is that of presenting a comprehensive picture of the technical capacity of the overall water resources management system presently existing in the study area. For the purpose of analysis, it is necessary to assume that all of the functions listed across the top of the matrix are indeed essential for effective water resources management. It will be necessary for each one of these functions to be performed by an appropriate combination of governmental entities. The words "appropriate combination" in the previous sentence bear explanation. For the proper performance of some functions listed in the column headings, it is necessary that the function be performed at more than one of the governmental hierarchical levels. For example, water resource planning must take place at the local, regional and statewide levels in order to properly incorporate all of the information available on the water resources system in the area. In this case, an appropriate combination of governmental agencies would include agencies representing the local, regional and statewide perspectives. For the proper performance of other functions, it may be that the function need be performed at only one hierarchical level. For example, an appropriate combination of agencies to engage in the adjudication and administration of the system of allocating water rights may logically be limited to state level agencies only.

The blank spaces in the matrix are just as important as the spaces marked with an "X" or an "O". If an entire

column representing the performance of a particular institutional function is substantially blank, a deficiency in the overall water resources management system is indicated. This deficiency would have to be addressed by any plan for implementing a comprehensive system for water resources management in the study area. If a column of the matrix has a substantial number of entries in the column, the collection of agencies responsible for performing this function must be examined to determine whether or not there is unnecessary duplication and whether or not the function is adequately performed at each of the desired hierarchical levels of government.

Examination of the columns in the matrix is an examination of the various functions required for water resource management. An examination of the rows of the matrix is an examination of the agencies, or institutions, which exist in the study area. As one's familiarity with the matrix format increases, it is easy to identify the key institutions in the water resources management system. These agencies will, of course, be designated by a significant number of "X's" and "O's" in a particular row of the matrix. Key agencies exist at each of the governmental levels designated on the matrix display. There are other agencies and institutions which perform functions in the management of water resources in the study area and yet would not be identified as key agencies. Although consideration of these other agencies and the functions they perform is extremely important, these other agencies and the singular important functions which they perform tend to be far overshadowed by the key institutions and the multiplicity of important functions for which they are primarily responsible.

The information on the institutional analysis matrix indicates that there are three key agencies at the federal

level. These agencies are the Army Corps of Engineers, the Soil Conservation Service and the Environmental Protection Agency. These three agencies have major direct roles in the performance of many functions within the three major aspects of water resource management; (1) information and monitoring, (2) planning/design, and (3) management. The U.S. Geological Survey performs a significant number of functions in the information and monitoring portion of the management system and the U.S. Fish and Wildlife Service performs a fair number of key functions in all three aspects of the management system. The U.S. Fish and Wildlife Service should be considered to be a key agency. Although the matrix indicates primarily an indirect role in planning and design, their work under the Fish and Wildlife Coordination Act is extensive and their influence is great because of the quality of their work.

At the state level there are a number of agencies which would merit the designation of key agencies. The Governor and cabinet and State Legislatures of both states are obviously elements of the governmental system with a substantial amount of control in the water resources management system. This control is manifested mostly in the management aspect of the water resources management system. The agencies which perform a significant number of functions in all three aspects of the management system are:

Minnesota Water Planning Board
South Dakota Dept. of Water & Natural Resources
Minnesota Dept. of Natural Resources
(including both the Div. of Waters and Division of Fish & Wildlife)
S. Dakota Dept. of Game, Fish & Parks
Minnesota State Planning Agency
S. Dakota Planning Bureau
Minnesota Soil & Water Conservation Board[1]
S. Dakota Division of Conservation[2]

[1]The Minnesota Soil & Water Conservation Board is actually a part of the Minnesota Department of Natural Resources.

[2]This agency is a division of the South Dakota Department of Agriculture.

There are three other agencies, the Minnesota Environmental Quality Board, the S. Dakota Natural Resources Cabinet Subgroup and the Minnesota Water Resources Board which are extremely important in that these agencies have a significant coordinative role in matters involving water policy.

At the regional level the East Dakota Conservancy, the Minnesota Regional Office of the Department of Natural Resources, the Watershed Districts and the Regional Development Commissions would seem to be the agencies which should be designated key agencies. At the local level the counties, municipalities and soil and water conservation districts are the agencies which should be designated as key agencies.

The listing of key agencies is, in itself, a revealing exercise. At the local level, the counties, municipalities and Soil & Water Conservation Districts exist in South Dakota and Minnesota alike with very much the same functions and powers. At the regional level, however, things change. There are several agencies in Minnesota which can be designed key agencies. However, in South Dakota only one agency, the East Dakota Conservancy Subdistrict, rated the designation of key agency. There are other regional agencies in the South Dakota portion of the study area, however, these regional agencies function in a manner much different from the Minnesota regional agencies. The regional agencies in South Dakota, including the East Dakota Conservancy Subdistrict, typically have far less in the way of staff capabilities and operating budget than do their Minnesota counterparts. The Minnesota regional agencies and the personnel which staff these agencies seem to have regional perspective and an appreciation for the various interests which must be balanced within a specific large region. The function of the staff of the South Dakota regional agencies seems to be much different. The purpose of the South Dakota regional agencies seems

to be either a representation of the state department to the localities or to provide support to the localities in their local activities or both. The perception of a regional identify does not seem to be as strong in South Dakota as it is in Minnesota. It may be possible to account for this observation by examining the uniqueness of the South Dakota portion of the study area. In geographic terms, the South Dakota portion of the study area is more closely tied to the balance of the hydrologic unit which is in the State of Minnesota than it is to the balance of the State of South Dakota. It is also important to realize that the extreme eastern portion of South Dakota is a long way from the state capital and that there are many other areas in South Dakota with significant and pressing water-related problems.

At the state level the key agencies in both states are roughly parallel. At the federal level, generally speaking, the agencies involved have jurisdiction over the entire study area.

Turning from a consideration of the agencies to a consideration of the functions which they perform, there are also some general analytical observations that can be made from examination of the information presented in the matrix. It is important to understand that these analytical observations relate to functions as performed by the system as a whole and not as performed by individual agencies. The first observation from a general assessment of the institutional analysis matrix must be that no single column (columns represent functions) is completely blank. There are, however, some columns in which there are very few entries.

In the information and monitoring aspects of water resource management, there are very few agencies which gather

information regarding the management and financial capabilities that exist within the system. Whereas many people would tolerate this weakness in the abstract, the lack of information regarding the management systems constitutes a severe limitation on the accuracy with which implementation plans and strategies can be developed.

Perhaps the most noticeable deficiency in the general area of planning/design is the general area of forecasting. Deemed unessential by some, forecasting is an important element of developing alternative plans of good quality. This is because forecasting is the only activity which provides us with any form of knowledge about the future condition of the system for which planning is being developed or the technology which may be available in the future for the resolution of problems.

The other system weaknesses in the planning/design aspects of water resource management all seem to be interrelated. The weakest element in the activities associated with modeling and simulation, the formulation of alternatives, and the assessment of both present and alternative water resource management systems involves the institutional, particularly the financial, aspects of planning for the management of water resources. This system deficiency is magnified by the fact that the development of information about management and financial systems is one of the weak points of the information and monitoring aspect of the overall management system.

Perhaps stemming from the weaknesses in the information and monitoring and planning/design aspects of the overall system which are noted above, the weakest points of all three subdivisions of the management aspects of the overall system

(i.e., direction, coordination, and administration) are also related to various aspects of the financing system. An attribute of the overall system which is perhaps not readily discernible from the information presented on the matrix may contribute to the problems which seem to be presented by the financing aspects of water resource management. Communication among the agencies and among governmental hierarchical levels is not directly shown in the matrix presentation. It can be observed, however, that the agencies with the most pervasive and direct roles in financing various aspects of the water resource management system are different from those agencies with the strongest role in the development of systemwide water resource management plans. The agencies which have the most direct role in the generation of revenues and the provision of other sources of financing for water resource management activities are those at the federal level, the very top state levels and local units of governments. With the exception of the federal level agencies, these are not the agencies which contribute most to the development of systemwide comprehensive water resource management plans. Perhaps the agencies that take the lead role in the development of comprehensive water resource planning on a systemwide basis could (and yet do not) profit from a significant input from local units of government and local special districts on the one hand and federal agencies on the other in the development of the financing aspects of the water resource management plans.

There are a few of the major analytical observations possible from the information presented in the institutional analysis matrix. These and other observations are discussed in another light in Section 7 of this report dealing with "Organizational Interrelationships".

It is appropriate to conclude this section of the report with a few comments and caveats about the use of the

institutional analysis matrix. The matrix format of presenting information has long been recognized as a helpful analytical tool. As social and other sciences have begun to benefit from the applications of computer science and automatic data processing, increasingly larger matrices have been utilized. The format used in the institutional analysis matrix presented in this report may lend itself to computer applications in the future. There are some aspects of the matrix format that must be remembered when examining information in the matrix. Entries under each functional column heading must be interpreted in light of three things:

1. The geopolitical factors (i.e., governmental hierarchial level and geographical jurisdiction) which constrain the manner and scope of the performance of a particular function by a specific agency.

2. The nature of the particular agency may also color the interpretation of the performance of a specific function. One agency may perform a function incident to fulfilling its primary mission; another agency may perform the same function in a much more limited way only as an adjunct to other primary responsibilities. This may result in qualitative and quantitative differences in the performance of functions.

3. Common Sense. Knowledge of other factors that may amplify the interpretation of the institutional information presented in the matrix must not be ignored. Rather, this knowledge should augment the observations and conclusions that are derived from analysis of the matrix.

Whereas the institutional analysis matrix in this report is now static, the various governmental systems on which it contains information are dynamic. Several of the major agencies reviewed in both Minnesota and South Dakota indicated that reorganization had recently occurred. A few other major agencies in both states indicated that efforts were currently underway to reorganize. The information in the matrix will soon be outdated unless it is continuously improved and updated.

# 6. ORGANIZATIONAL PERCEPTIONS

This section of the institutional analysis report is included to present some information about the perceptions of representatives of the various institutions about the role of their agencies in water resource management in the study area. The information is presented at this point in the report as a complement to the information about the various institutions presented in the second, third and fourth sections of this report.

The information presented in this section has been obtained from many sources, but the primary source used is the face-to-face interviews conducted by the researchers. The views of the individuals interviewed may in some instances depart from an "official" view of a particular agency. In some cases the individual's view may be more realistic than the official view; in some cases the reverse may be true. In all but a very few instances, the researchers conducting the interviews were impressed with the cooperative spirit of the individuals interviewed. There is another impressive characteristic which emerged from the interviews. The individuals interviewed may hold opinions and viewpoints that are very different, but all are most sincere in their efforts to improve the operation of the water resources management system as they perceive it.

The individual responses used as the basis for the preparation of this section of the report were basically responses to a group of questions included on the standard interview format and asked by the researchers in the conduct of each face-to-face interview. These questions as well as the entire standard interview format are presented in Appendix D to this report.

## 6.1 Summary of Perceptions

Aggregation of the interview responses from key water management agencies on all governmental levels indicated good awareness of water resource issues relevant to the study area. Responses were expressed on a number of different issues, yet tabulation of response frequency revealed one major water resource issue--the conflict between land use and environmental quality. After this one issue, which is actually the combination of two water resource problems, the water resource issues most frequently discussed may be organized as four basic topics: (1) water supply, (2) flooding, (3) land use, and (4) environmental quality.

The four basic water resource issues recognized by the agencies is a simplification of a larger spectrum of interrelated problems. Other relevant issues were debated less frequently as subtopics of the four basic topics. The additional issues are listed below as subtopics:

1. Water Supply
   - Irrigation
   - Water Quantity
   - Water Quality
2. Flooding
   - Land Use
   - Channelization
3. Land Use
   - Agricultural Production
   - Sedimentation and Erosion
   - Drainage vs. Wetlands
4. Environmental Quality
   - Conservation of Wildlife
   - Recreation
   - Public Waters

Respondents also agreed on both the main cause and potential means to resolving these problems. The main cause of the continuation of water resource problems, other than the

fact that the problems were a results of topographical and other natural environmental factors, was stated to be the functional deficiency of inadequate communication and coordination of the solutions to water problems among agencies and the public. Consequently, the primary observations on a potential solution was elimination of this lack of coordination and communication. Not only should agencies communicate more information among other agencies and the public; coordination of the options for solutions must occur. A means of evaluating solutions must take place; the organizations stated that at present it does not. The means of "selecting" the most feasible solution was to evaluate the most important element of each solution--finance. The method consistently recommended for evaluating finance was cost-benefit analysis.

Not all water resource issues necessitate analysis of proposed solutions. Several problems may simply require the application of an agricultural management technique. Interview responses connoted less concern from agencies about these types of problems than other water issues. Other complex alternatives demand detailed evaluation to identify the solution which provides the maximum benefit at the minimum cost. In these instances, no solution will be completely beneficial to all persons. For example, regulation of water quality, land use and public waters all have a negative impact on some group of persons. State agencies are obligated in these areas to maximize the welfare of the state (or at least the region) over the cost to a particular locality.

The significance of cost-benefit analysis as a means of solving water resource problems is reinforced by reference to one other piece of primary data obtained through the interviews. Responses to questions relating to the attitude of the organization toward potential water projects was

specifically predicated on the financial costs and benefits to all localities which could be affected by a water management project.

Discussions which resulted from the interviews conducted identified two issues on which several agencies and a significant number of individuals in the study area have taken sides. These issues have become controversies. This does not mean that there is a heated running debate, but there are definite differences of opinion. The fact that there are these definite differences of opinion is not an indication that these issues are the most important in the study area. It merely means that there are at least two definite and commonly championed sides to these issues.

The first issue is the drainage versus wetlands controversy. The aggressive agriculture interests in the study area favor drainage of excess waters from farmlands in order to create more arable land on which to plant and harvest crops. Favoring the maintenance of wetlands and the creation of wetlands are environmentalists, the U.S. Fish and Wildlife Service, the State Game and Fish Agencies, and a host of staff and administrative personnel in various other agencies who favor the use of wetlands as an effective and economical flood control measure. Many of the economic interests at stake in this issue are obvious, even to a neophyte in the area of the management of soil and water resources. The preservation of wetlands and the creation of wetlands means the unavailability of croplands to the farming community. It must be hastily added that this is not only the loss of just farmland, but often some of the richest farmland in the perception of the farmers. The creation and/or preservation of wetlands then represents a cost to the farmers in the form of a lost opportunity. Aside from intrinsic values, the preservation and maintenance of wetlands can result in several types of benefits.

Many of the benefits accrue to the general population of the area. Other benefits accrue to a more definable group of individuals. In that wetlands provide a habitat for various species of fish and wildlife and assist in the maintenance of water quality, these benefits accrue to the general welfare of the area as a whole. Wetlands can also reduce flooding damages and offer a recharge area for groundwater supplies. These benefits are more local in nature and accrue to the benefit of those whose land is now not flooded and those who are able to benefit from a greater supply of groundwater. Many times these more local benefits accrue to those within the agricultural community who perceive the preservation and and maintenance of wetlands as a net cost. It has been suggested that if wetlands do in fact result in a greater supply of groundwater that this groundwater may be enough of a benefit to a farmer to make up for the lost land covered by the wetlands. The manner in which this tradeoff would be effected would be through the use of irrigation of the balance of the farmer's land holdings, thus increasing the production on the remaining lands in an amount equal to or greater than the increment of production that would have been gained by cultivating the land area covered by the wetlands.

The same two interest groups that have gravitated to the two sides of the drainage versus wetlands controversy are also at odds over a second water resource related issue. This second difference of opinion is the value of using various land treatment methods to reduce flood damages. The use of land treatment alternatives to conserve soil, prevent wind erosion, prevent soil erosion, and reduce the damages incident from flooding has been advocated for some time. The agricultural community perceives the institution and continued use of these land treatment methods as a cost in two ways. First, there is the cost of actually putting in place and maintaining these land treatment alternatives. Second, there

are certain identifiable opportunity costs. One of the land treatment methods most frequently advocated is maintaining a ground cover on agricultural land to the greatest extent possible. Presently, most of the farmers in the study area harvest their crops in the fall and cultivate the soil. This soil is left cultivated with no ground cover through the fall, winter, and into the spring. The cultivated land in the spring is ready for preparation earlier since it thaws out and dries out quicker than uncultivated land. It is also easier to prepare this cultivated land for spring planting in that the process of fall cultivation breaks up the clods in the soil making it easier to till and plant in the spring. The other point of view taken by many in the Soil Conservation Service, the Soil and Water Conservation Districts and several other state agencies is that an excessive amount of soil resources are lost from this land with no ground cover through wind and water erosion. This cultivated land is also most susceptible to sustaining excessive damages resulting from flooding when flooding occurs.

The articulation of the two differences of opinion immediately above is perhaps possible only because the physical relationships between soil and water resources and the economic interests at stake have been well defined. The economic interests at stake have at least been defined well enough so that various interest groups feel that they are provided with enough information to make a choice. Many of the water resource issues in the study area have not been defined to this extent. If all water resource issues could be defined to the extent that these two issues have been defined, the economic interests at stake would be more apparent. A competent water resources management planning staff would then be able to suggest ways in which financing systems and economic mechanisms could be used to achieve an equitable distribution of the cost and benefits involved in the various

alternative methods of water resource management in the study area.

# 7. ORGANIZATIONAL INTERRELATIONSHIPS

The purpose of this section is to expand on the information presented in Secs. 3-6 of the report by discussing the interrelationships among the various institutions in the existing water resources management system in the study area. Secs. 3 through 6 cover the characteristics of the institutions, the legal imperatives and enabling legislation associated with those institutions, the various water resources related functions performed by the institutions, and the perception of the various institutions regarding specific issues in the management of water resources in the study area. Much of that information has been used to facilitate the observations contained in this section. In addition to the information in foregoing sections of this report, additional information obtained through statutory review, research of existing literature, and discussions with persons who work within the system have been incorporated to form the basis of the material presented in this section.

## 7.1 Areawide Water Resource Planning and Management - A Management System

In order to evaluate the technical capacity of the existing water resources management system, it is not enough to indicate that each of the various functions is performed by some agency or institution. It is also necessary to determine whether or not the agencies and the functions they perform are properly coordinated so that the entire management structure functions as an integrated holistic system.

Before investigating the relationships among the various functions to be performed and the institutions that perform them, it is appropriate to provide an oversimplified model of the manner in which a management system operates. On the basis of this model, some evaluative observations can be made

about the operation of the present water resource management system. Such a model appears in Figure 7.1.

In the model, the various management functions have been organized into six processes that are arranged in more or less sequential order. In several instances, the time frames within which these processes occur will be found to overlap. This allows for input from one process into more than one other process. Many of the labels used in the model correspond to the major topical headings in the institutional assessment matrix (Fig. 5.3).

Using the management system model, it is possible to express the relationships among some of the functions which are merely listed on the institutional assessment matrix. For example, it can be seen that those functions in the broad category of management which deal specifically with the identification of problems and the articulation of values, goals and objectives, occur in the initial phases of the management process. Identifying a particular problem has the additional function of establishing the boundaries or limits of the area within which information will be gathered. These boundaries then give direction to the institutional functions that relate to gathering and organizing data, as well as the initial phases of the analysis function. Data gathering and organization will provide the information necessary for the institutional functions relating to analysis and the formulation and assessment of alternatives (mostly found under the broad topic of planning/design). Then these alternative assessments are considered by the appropriate decision-makers in a management process usually referred to as alternative selection.

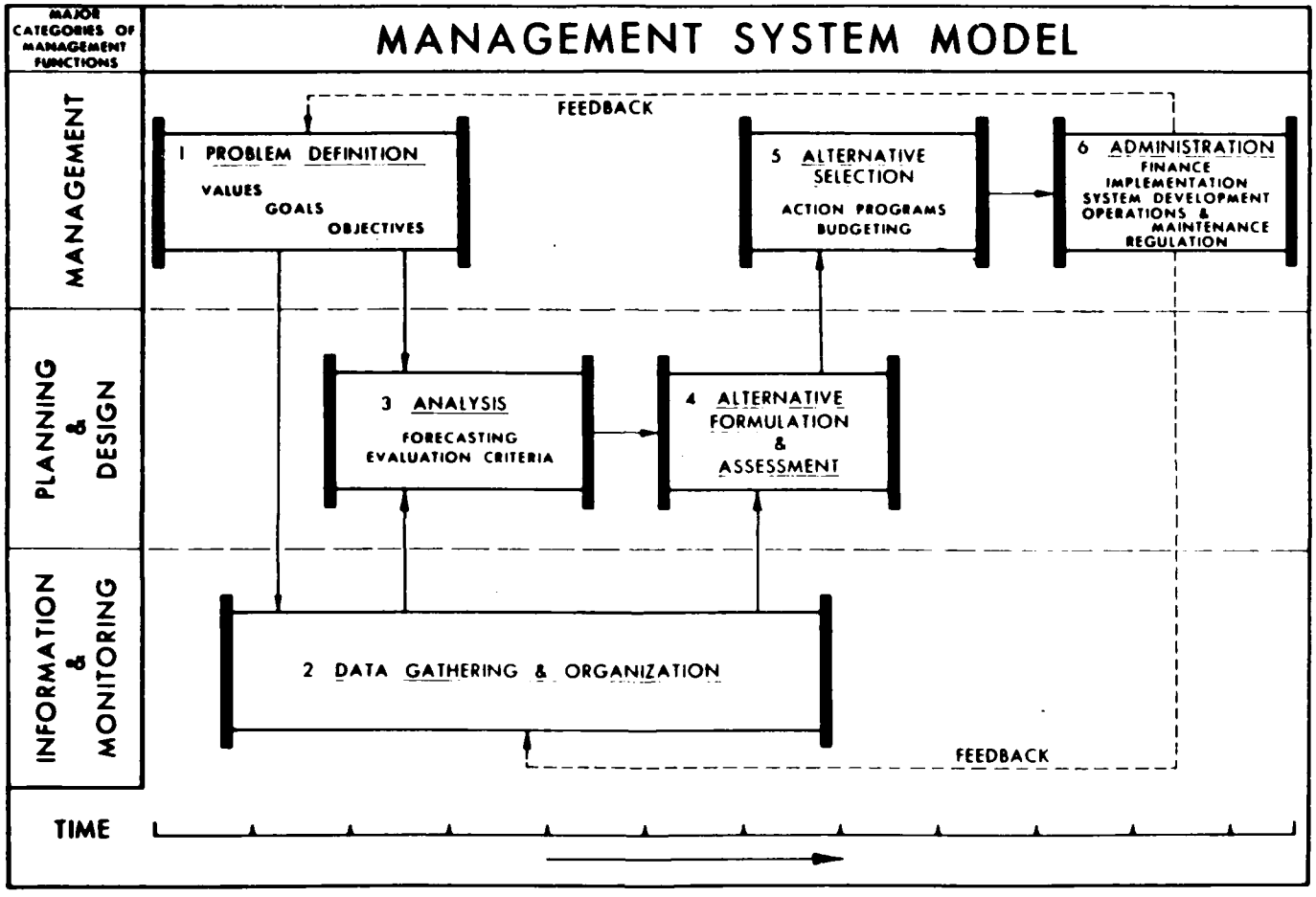



Figure 7.1. Management System Model

Once alternatives have been selected, action programs are designed and appropriate budgeting is arranged, and the programs are implemented and administered. It is easy to see that a significant amount of coordination and communication is necessary to ensure that the outputs of any one of the six processes are conveyed to the other management processes which may be dependent on them. The importance assigned to the coordination and communication function is reflected in the fact that it is a major heading under the broad category of management in the institutional assessment matrix.

From the explanation of the relationships among the major institutional functions, the relationships among the institutions that perform these functions should be clear. An obvious example is the relationship between those entities which conduct analyses and formulate alternatives for the management of water resources and those that gather the information necessary for these analyses to be conducted. The institutional assessment matrix indicates that some of the agencies which collect data on water quantity are indeed different from those which formulate, assess and select the water supply alternatives within the study area. Since this is true, it is incumbent upon these agencies to establish some means of communication so that those agencies which formulate alternatives can have at their disposal all necessary information about the water resources in the study area; and those agencies which select the final alternatives can have full benefit of the water resource information and the analysis conducted during the planning/design phase.

The above cited example highlights the necessity for cooperation among agencies and institutions involved in separate management processes. There is yet another dimension to

the interrelationships among institutions. Agencies involved in the same basic management process as depicted in the management system model must also coordinate their activities. If water resource management is to be conducted on a regional basis (i.e., throughout the entire study area), the activities of all institutions within the study area which plan and design alternatives for the management of water resources must in some way be coordinated.

In addition to the importance of coordination that must occur among agencies and among functions within the water resources management system, it is important that several elements of the water resource management system have appropriate jurisdictional authority. An essential requirement of a system that would manage the water resources within the entire study area is the existence of an agency or collection of agencies with jurisdiction throughout the study area. Without some form of comprehensive jurisdiction, it would be impossible to implement any management plans that would encompass the entire study area on anything other than a voluntary basis. Historical indicators attribute little success to efforts that attempt to manage the allocation and other economic aspects of valuable resources on the basis of voluntary cooperation.

## 7.2 Critique of the Existing Management System

At the outset, it must be stated that there is a great deal of water resources management activity occurring in the study area. Agencies from both states and all jurisdictional levels are very concerned and active in the area of managing water resources. This observation finds support in the institutional analysis matrix in that no one single column of the matrix is completely blank. This indicates that there is some agency which performs each of the functions included in the matrix as required for effective water resource management.

The problem which is central to the entire institutional analysis is that the area institutions and the functions which they perform do not comprise an overall management system. There are three basic reasons that can be cited for the inability of the melange of institutions to operate as a water resources management system for the study area. The three reasons are:

1. The problem of appropriate jurisdiction;
2. Functional weak points;
3. Insufficient coordination and communication.

All three of these problems are actually different manifestations of a larger theme of the failure to use a truly regional approach in resolving major complex issues.

Jurisdiction. The designers of the overall 639 Study and of this institutional analysis are to be commended in their selection of the geographical boundaries of the study area. The major issues involved in the overall 639 Study and this institutional analysis are water resource management and flood control. The study area selected was the geohydrologic unit of the Upper Minnesota River Subbasins. Within this geographic area, the land and water resources function as an integrated system, a system which can readily be identified and distinguished from all similar systems in the surrounding area. As noted in Sec. 6 of this report, there is a generally agreed upon set of water resource problems in this area, flooding being first on the list. Whereas there is general agreement as to the nature, magnitude and even priority of the water resource related problems, there is widespread disagreement as to the correct actions to take to resolve these problems. Another way of stating this dichotomy would be that there is general agreement that the total available land and water resources within the study area could be more effectively and efficiently utilized with greater

overall benefits if certain generally appreciated water resource related problems were resolved. However, there is little agreement on the specific manner in which the incidence of the costs and benefits associated with resolving these problems are to be allocated.

The use of an example is appropriate. There is a significant amount of flooding of lowlands which are used for agricultural production. These flooding incidences cause extensive crop damage, soil erosion, water quality problems and associated other adverse results. There is general agreement that this situation should be eliminated and that the elimination of this situation would improve the general welfare of the region. There is widespread disagreement about what methods should be used to accomplish this result. One possible solution may be to remove the flood prone lands from agricultural production and to manage these lands as wetlands. There are both benefits and costs associated with the implementation of this solution, both of which have both long and short-term effects. The incidence of the costs and benefits under the present system is widely perceived to fall on the land owner and/or land occupier. Another potential solution to the above-described flooding problem may be to build water retention or detention structures in the upland areas which will prevent the flooding in the downstream agricultural areas. This solution also has both long and short-term costs and benefits. Although it is true that the owner of the upstream lands on which the water retention or detention structures are built would be compensated, it is interesting that the benefits of these structures are widely perceived to accrue to the owners and/or occupiers of the downstream agricultural lands.

At present, under the "do nothing/maintain status quo" alternative, the damages associated with flooding are also

widely perceived to fall on the owners and/or occupiers of the flood prone areas. If the widespread conviction that eliminating the damages associated with flooding will improve the general welfare (read as "economic benefits") of the entire study area, it would seem that a necessary standard for a comprehensive set of alternative solutions would be that the net long-term benefits should be shared equally throughout the study area.

This standard of equal distribtuion of net long-term benefits is only possible when the study area includes all areas which will experience either the incidence o sts for the incidences of benefits. Fortunately, the study area as defined by the Upper Minnesota River Basin meets that qualification. Unfortunately, the jurisdictional responsibilities of the institutions in the study area are such that the economic mechanisms for achieving an equal distribution of the costs and benefits would be extremely difficult if not impossible. A significant factor contributing to this problem is that the localities and the state possess the major assessment and revenue producing powers. Neither state nor any of the counties included in the study area utilizes the geohydrologic unit of the Upper Minnesota River Basin as a basis for any of its economic decisions. One agency, the Area II Minnesota River Basin Projects, Inc., comes close to using this geohydrologic unit as a basis for its decisionmaking. However, even Area II does not include the South Dakota portion of the study area in its makeup. Since the South Dakota portion of the study area includes upland areas which may be ideally suited for the location of flood control structures, it is essential that this area be included in any realistic attempt to distribute costs and benefits of a comprehensive set of water resource management projects. It is to be noted that the review of the water

resources related legislation indicates that it is legally feasible to expand the jurisdictional responsibilities of various governmental and quasi-governmental entities to include the South Dakota portions of the study area. In order for the Upper Minnesota River Basin to develop a comprehensive and concerted effort to deal with water resource problems in the area in an equitable manner, it is extremely desirable to have an agency familiar with water resource issues with the jurisdictional scope that would enable it to consider and resolve the interests and issues which exist in the total study area.

Function. Many of the weaknesses in the existing system noted in Sec. 5 of this report relate to financing systems. The immediately preceding discussion concerning the lack of appropriate economic mechanisms for achieving an equitable distribution of the costs and benefits associated with effective management of the water and related land use resources in the study area highlights the need for increased knowledge of the economic and financing mechanisms and for increased planning/design efforts devoted to use of these systems in the resolution of water resource management problems. Apart from the need to correct these functional deficiencies in the existing system, there would seem to be a real need for an increased understanding of the economic aspects of the management of water and related land resources in the study area. Items that would merit special attention in this economic information would be the long-term costs and benefits associated with various philosophies of water and related land-use management; e.g., (1) intensive agricultural production and a maximizing of arable lands, (2) reduction of flood damages through removal of flood prone areas from agricultural production, and others. In each of these considerations several topics must be covered. These topics would include

the identification of economic and financing mechanisms to equitably distribute the costs and benefits of alternatives and the financial mechanisms and powers needed by institutions to effect the desired results. These economic studies must all take cognizance of certain physical relationships which exist in the study area, the most important of which are the ecological relationships between the management of soil and water resources and the value of maintaining the long-term productivity of the land (i.e., soil resources).

It is to be noted that the needs for economic information suggested here as a necessary prerequisite to the efficient operation of a water and related land use management system coincide with the policy requirements of both NEPA and Minnesota water resource policy regarding the necessary elements for decisionmaking on environmental matters.

Coordination and Communication. As an introduction to this section of the report an attempt has been made to graphically portray the communication linkages which exist presently among the various major actors in the field of water resource management in the study area. In Fig. 7.2 the communication links among the major state, regional and local agencies are displayed. A list of agencies which correspond to the numbers used in the diagram follows Fig. 7.2. In Fig. 7.3 these same state, regional and local agencies are listed and the extent to which these agencies have continuing communication with the four major federal agencies is noted in tabular format. It is to be noted that both of these figures attempt to depict the normal course of events or the usual situation. In specific instances and in the case of more limited subjects of concern, the communication links may be drastically different from those depicted in these figures. The criteria used to decide on the graphic representation of a particular communication link amounted to a general assessment of whether

COMMUNICATION LINKS
AMONG STATE, REGIONAL AND LOCAL AGENCIES
IN MINNESOTA AND SOUTH DAKOTA
IN MATTERS CONCERNING WATER RESOURCE MANAGEMENT

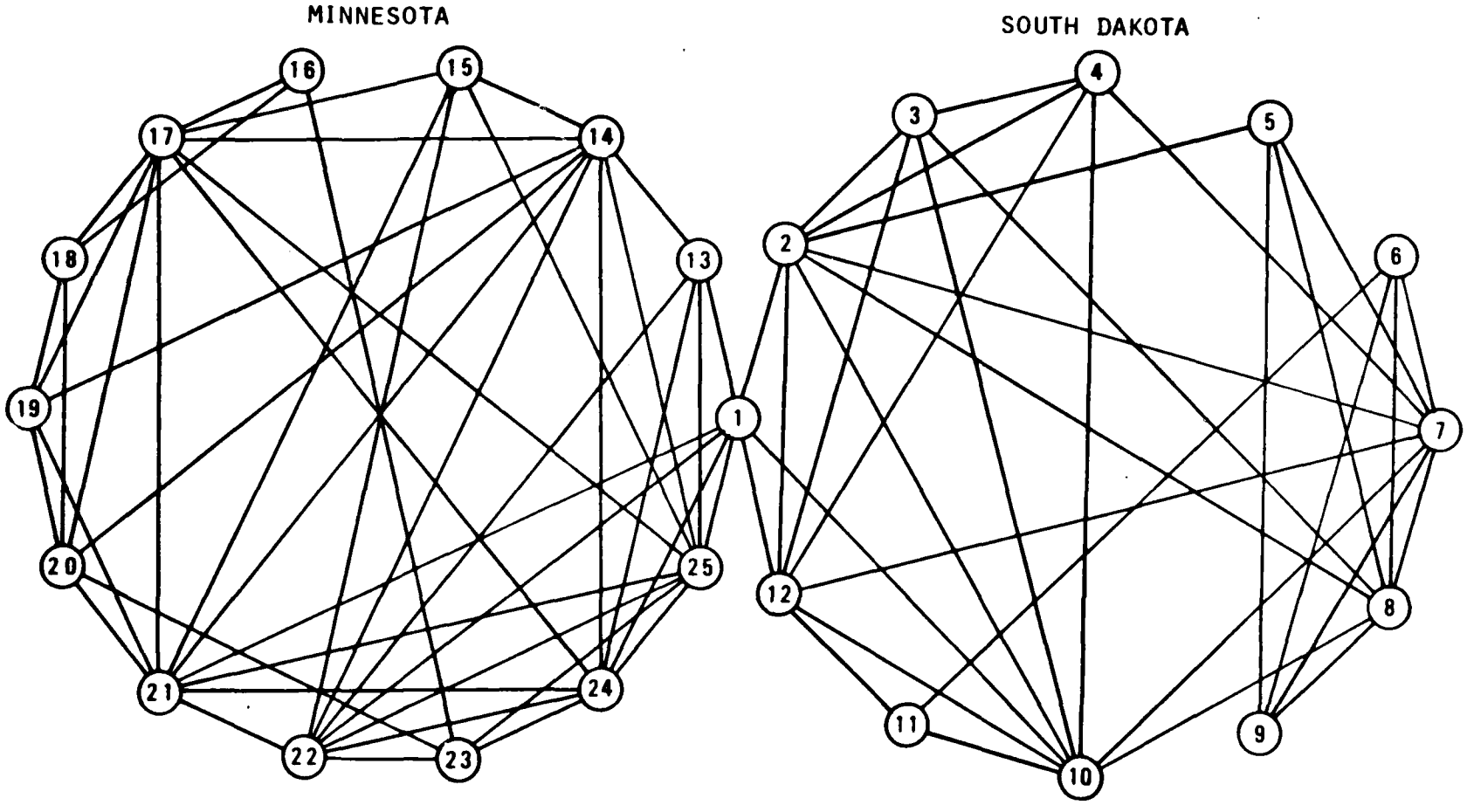



Figure 7.2

LEGEND

LIST OF AGENCIES REPRESENTED IN FIGURE 7.2

| Number Used in Fig. 7.2 | Agency |
|---|---|
| | SOUTH DAKOTA |
| 1 | Various local interest groups and private citizens |
| 2 | Soil & Water Convervation Districts |
| 3 | Regional Dept. of Game, Fish & Parks |
| 4 | Regional Dept. of Water & Natural Resources |
| 5 | State Department of Agriculture |
| 6 | State Planning Bureau |
| 7 | State Department of Water & Natural Resources |
| 8 | State Department of Game, Fish & Parks |
| 9 | Natural Resources Cabinet Subgroup |
| 10 | East Dakota Conservancy Subdistrict |
| 11 | First Planning District |
| 12 | Local governmental units |
| | MINNESOTA |
| 1 | Various local interest groups and private citizens |
| 13 | Soil & Water Conservation Districts |
| 14 | Soil & Water Conservation Board |
| 15 | Regional Department of Natural Resources |
| 16 | State Planning Agency |
| 17 | State Department of Natural Resources |
| 18 | Environmental Quality Board |
| 19 | Water Resources Board |
| 20 | Water Planning Board |
| 21 | Southern Minnesota River Basin Board |
| 22 | Area II Projects |
| 23 | Regional Development Commissions |
| 24 | Watershed Districts |
| 25 | Local governmental units |

| COMMUNICATION LINKS BETWEEN MAJOR FEDERAL AGENCIES AND OTHER AGENCIES IN THE STUDY AREA ("X" indicates continuing communication) | ASCS/SCS | E.P.A. | CORPS OF ENGINEERS | U.S.F. & W.S. |
|---|---|---|---|---|
| **SOUTH DAKOTA** | | | | |
| 1 Various local interest groups and private citizens | | | | |
| 2 Soil & Water Conservation Districts | X | | X | |
| 3 Regional Department of Game, Fish & Parks | | | | |
| 4 Regional Department of Water & Natural Resources | X | | | |
| 5 State Department of Agriculture | X | | | X |
| 6 State Planning Bureau | | | | |
| 7 State Department of Water & Natural Resources | | X | X | X |
| 8 State Department of Game, Fish & Parks | | X | X | X |
| 9 Natural Resources Cabinet Subgroup | | | | |
| 10 East Dakota Conservancy Subdistrict | X | | | X |
| 11 First Planning District | X | | | |
| 12 Local governmental units | X | X | X | |
| **MINNESOTA** | | | | |
| 1 Various local interest groups and private citizens | | | | |
| 13 Soil & Water Conservation Districts | X | | X | |
| 14 Soil & Water Conservation Board | X | X | X | X |
| 15 Regional Deaprtment of Natural Resources | X | X | | |
| 16 State Planning Agency | X | X | | X |
| 17 State Department of Natural Resources | X | X | X | X |
| 18 Environmental Quality Board | | X | | |
| 19 Water Resources Board | X | X | X | |
| 20 Water Planning Board | X | X | X | X |
| 21 Southern Minnesota River Basin Board | X | X | X | |
| 22 Area II Projects | X | | X | |
| 23 Regional Development Commissions | X | | | |
| 24 Watershed Districts | X | | X | X |
| 25 Local governmental units | X | X | X | |

Figure 7.2

the two agencies had enough communication in a variety of forms to be generally familiar with one another's major on-going water management related activities in the study area. One of the virtues of the institutional analysis presented in Sec. 5 is that it facilitates the identification of functional areas in which there are potential overlaps and duplications in a given system. Any functional column in which there are numerous entries, especially entries at different governmental hierarchical levels indicates the possibility of functional duplication. In the information and monitoring aspect of water resources management, the matrix indicates that there are many agencies at all levels of government which are involved in the gathering, organization and retention of many data items. This indicates a potential duplication. As a practical matter there never seems to be enough information available to facilitate the resolution of complex problems. It is suggested that rather than attempt to eliminate overlap or duplication, the correct response in this case is the coordination of some data gathering efforts and the communication among data repositories to enable those who are seeking water resource related data to more easily ascertain the appropriate sources of the needed data. It is very possible that this suggested result can be accomplished through use of computerized information systems which are in present use and development in both Minnesota and South Dakota. Computerized systems of this ilk are maintained by the University of Minnesota and South Dakota State University at the state levels and by U.S.G.S. at the federal level.

Even a brief glance at the entries under the planning/design portion of the institutional analysis matrix indicates that significant planning and design functions are performed by a number of agencies at each of the hierarchical levels of government. If these various planning/design functions are not coordinated, the value of obtaining the unique perspectives

presented by planning efforts at the local, regional, state and federal levels is negated, or at the very least obfuscated, by the development and attempted use of different plans prepared by different agencies on different assumptions for the same or related aspects of the same geographical area. Since there is a great value in the incorporation of the planning perspectives from the various governmental levels, it is suggested that a system of coordinating water resource planning at the several levels of government be designed and implemented. This coordinated system should have several attributes. Since the geohydrologic unit has compelling advantages in the resolution of water resource problems, it is suggested that any system of coordination require planning activities at all levels to take cognizance of the effects of their plans on the geohydrologic unit. This does not mean that the water resources planning effort must be a planning process controlled and conducted by top level agencies, compliance with which is required of local agencies. It is even possible that the development of a regional and then, in turn, a state water resource plan could begin with the aggregation of local planning objectives and proposals. There is, however, a need to coordinate this process of aggregation and amalgamation by some level of government with a familiarity with the characteristics and limitations of the regional systems. The performance of this function may best be handled by a regionally oriented agency supported by a staff well qualified in the numerous technical disciplines involved in comprehensive water resource management planning. If no such single agency exists, it is possible that a cooperative arrangement among several agencies could achieve the desired result.

There are other elements of coordination which are involved. The water resource plans for a region must be coordinated with the funding available in the various programmatic areas of local, regional, state and federal governmental agencies. Major water resource management projects tend to be fairly expensive and, as a result, require a significant amount of federal and/or state dollars. The decisions regarding the staging of specific projects included in a comprehensive regional water resources management plan must be made by agencies at a level of government with the necessary perspective and information to balance not only competing water resources management interests, but also the interests of other competing areas separate from water resource management. Agencies with these qualifications may include the Governor and cabinet, the state legislatures and the state planning agencies.

Prior reports have expressed a concern on the part of the state level governmental agencies that the state's decisionmaking powers regarding water resource management are being in part usurped by federal agencies. This attitude is supported to some degree by the information presented on the institutional analysis matrix. It is readily observable from the entries on the matrix in the management aspects of the water resources management system that agencies at both the federal and state levels claim to provide direction and coordination in the management processes. Granted, direction and coordination of management processes are necessary, but when direction and coordination come from two different perspectives with competing powers and interests the effectiveness of the guidance provided for the entire system by this dual direction and coordination is questionable. It must be quickly added that whereas the duplication in the direction and coordination efforts is a very real possibility, the possibility also exists for

the coordination of these efforts. The federal agencies involved in this particular facet of the management system are the Army Corps of Engineers and the Soil Conservation Service. These two agencies have interests in, and funds available for, many of the water resource related projects that would be included in a comprehensive water resource management plan for the states. If the states had a comprehensive water resource management plan for resolving water resource related problems and balancing the economic interests within geohydrologic units, it would place the state in a much better position to take advantage of the various types of assistance available through the continuing and special projects of such federal agencies as the Corps of Engineers and Soil Conservation Service.

Reporting Responsibilities. All speculation on the need for improved communication among various water resource agencies aside, documentation of the required contact between agencies as perceived by water resource agencies themselves was obtained through the personal interviews. Institutional responses to the inquiry on reporting responsibilities of each agency confirmed the implication of the institutional analysis matrix which showed insufficient coordination among agencies. Reporting that did take place, according to agencies interviewed, was in the form of administrative reviews which were presented to the agency to which they were accountable. All agencies were first accountable to that agency which was directly above them, with regional accountability to the state, and state agencies accountable to the state legislature and the federal government. Several examples of this type of reporting are the regional offices of DNR reporting to the central office of DNR, regional development commissions reporting to the State Planning Agency and the Department of Economic Development, the Department of Health accountable to the Environmental

Protection Agency and agencies dealing with wildlife in both Minnesota and South Dakota reporting to the U.S. Fish and Wildlife Service.

There are three instances in which reporting occurs in reverse, from the higher level government down to the lower level government. Both regional development commissions (RDCs) and watershed districts reported to the County Commissioners which allows them to strengthen their connection between two levels of government. The Corps reports to the States on a number of different programs including: Emergency Operations, (Title III, Intergovernmental Cooperation Act of 1968, P.L. 84-99, and P.L. 93-288); flood insurance studies; and cooperation in preparation of comprehensive plans for water resource development, utilization and conservation under Sec. 22 of P.L. 93-251, Water Resources Development Act. of 1974.

One factor which accounted for connections strengthened through the direction of agency reporting was the type of information which was shared between agencies. The relationship of coordination which was established between the RDCs and the local government, in particular, encouraged the communication of ideas which concerned more than a simple reporting process. Constant two-way communication created a stronger bond which allowed information to be interchanged on an informal basis rather than a formal systematic process concerning standard types of information.

Again, all agencies had primary reporting responsibilities to an organization directly above or below them on the governmental level. Changing from a vertical interpretation of reporting and accountability to a horizontal perspective of reporting among agencies on the same governmental level, only two agencies reported to other agencies on the same

governmental level: the State Planning Agency and the Water Planning Board. These agencies are mandated by law to coordinate water management.

Documentation in Sec. 4 of the legal structure of agencies revealed a microcosm of the entire structure of the water management system. Analysis of the structure of the reporting system revealed a separate microcosm which had become subordinated to the legal requirements which state what types of reporting must occur. The reporting system was obligated to make standard administrative reports which overlooked the opportunity for exchanging additional types of data other than routine activity reports. The type of reporting which needs to occur is that which includes all areas of water resource management including information, planning and administration of water resource projects. Water resource problems do not exist independently of each other, yet the structural operation of agencies outlined in the legal framework in fact functioned independently of other agencies. There appeared to be little informal contact between agencies in regard to even the basic sharing of hydrological facts which were the foundation of all water problems.

A "separation of powers" occurs between all levels of government. Although an agency may be legally limited to its functions, an agency is not prohibited by law from researching possible sources, i.e., other water-related agencies which might aid it in accomplishing its objectives. In this respect a natural strengthening of functions included in the water management system would occur as all agencies sought to contact each other to apply their capabilities to achieve the maximum possible benefits.

Coordination with U.S. Army Corps of Engineers and the Soil Conservation Service.

Section 4 presents the legislatively required types of relationships which all agencies involved in water resources management in the study area have with the U.S. Army Corps of Engineers and the Soil Conservation Service. The relationship identified through the law was based on the financial "carrot", necessitating a review for protection of environmental interests when federal funds became involved in any project. Although no additional coordination is required, the Corps exemplified, through the authorization of this institutional analysis as a part of the P.L. 639 Study, a desire to understand how they might most effectively participate in the system of water resource management extant in the study area. Coordination with the Soil Conservation Service was perceived to occur by one state agency, the Soil and Water Conservation Board. These two agencies worked together to review projects which could possibly become eligible for allocation of federal monies. These agencies exhibited a strong working relationship.

The U.S. Army Corps of Engineers was not perceived "formally" to be an agency to which any state or other agency was directly accountable. At this point, an observation was elicited unintentionally from the personal interviews which provides insight into the subject of the relationship of the Corps with other agencies. There are state and regional agencies which have taken it upon themselves to facilitate the relationship between the federal agencies and local governmental entities by unofficial mediation and communication. These agencies repeated many times their perceptions of inefficiency in these two levels of government (i.e., local and federal). The federal government is often perceived by local governmental entities as representative of the environmentalists and local government in the study area

as representative of the farmer and agricultural interests. The perceived interests of these two levels of government and the vaccuum in required reporting between the two levels of government serves to polarize the difference of opinion in water resource alternatives between the conservationists and the farmer. Moreover, a point of difference which has not been discussed is the question of which level of government is equipped to handle the water resource problems of the area. The Corps of Engineers and the Soil Conservation Service of the U.S. Department of Agriculture have both the financial capacity and technical expertise necessary to research water resource problems and their alternative solutions in a comprehensive manner while the local farmers do not. The one power that the local governments have that the federal government does not, is the authority and jurisdiction to approve implementation of water resource projects. This local power is, of course, not sufficient to make a project happen; there are other actions that must occur at the federal level. And, whereas the federal level agencies do not work through state and regional agencies, there are, in some cases, actions which certain state and/or regional agencies might need to take in order to facilitate certain types of water resource projects. Both levels of government have what each other needs; therefore, some method of resolving differences must be established initially through communication.

## 7.3 Institutional Change

Throughout this report there have been many references to opportunities for change within the institutional system that is presently responsible for the management of water resources in the study area. Significant institutional changes have also be suggested by other reports such as: State Program Inventory and Problem Identification (Technical Paper No. 5, Minnesota Water Planning Board), Management Problems and Alternate Solutions (Technical Paper No. 14, Minnesota Water

Planning Board), and Toward Efficient Allocation and Management (Appendix A: Report of the Management Work Group, March 1979, Minnesota Water Planning Board). Many of the changes noted in this report and those noted in other reports are similar in nature. The topics to be addressed in this portion of the institutional analysis report are the receptivity of the institutional system to change and the manner in which this change may be accomplished. The topics discussed here must be viewed with the understanding that many of the limits of organizational policies and practices are determined by law. Therefore, legislative changes may have to precede changes in organizational missions even if (and especially if not) organizations are willing to change.

The degree of receptivity to institutional change was elicited in the personal interviews with the various institutions. All institutions joined in expressing a sincere interest in change of the present administrative structure which would bring improved methods of resolving water resource problems. The water resource issues are not new ones, and as further indicated in the section on organizational perceptions, more could be done to overcome water resource problems. Few institutions could forecast specifically the role of their agency in achieving solutions; this suggests open-mindedness to the types of changes which could occur. In contract to this open-mindedness, however, the interviews also revealed some reluctance to joining in regional ventures. One of the standard responses to the question regarding participation in regional ventures was that participation would depend on the specific issue. It is suggested that this response can be loosely translated to real "it depends on the particular agency's perception of the economic interests involved."

There have been many learned and scholarly articles written on the subject of how change occurs in a system. Much

of this work stems from the original work of Ludwig von Bertalanffy, the famous general system theorist and Ross Ashby, the noted cybernetist. There have also been books written on the possible effects of systematic change (e.g., Alven Toffler's book, Future Shock). There is however, a lack of literature available on the specific techniques that can or should be utilized by governmental entities to facilitate internal change to maintain their responsiveness to the changing situations confronting the governing systems. Despite the lack of guidance from available literature, it is perhaps obvious that one crucial element in the institutional change is the development and wide dissemination of information concerning the potential for changes in the water and related land resources system in the study area.

Governmental agencies are not the only type of institution that needs to respond to change. Social institutions and economic systems must also be responsive to change. The legislative policy pronouncements in the various statutes reviewed in Sec. 4 indicate a shift in the types of flood control and related water and land resource management program alternatives that are favored for use in responding to water resource problems. This shift seems to be the result of a growing awareness and appreciation of environmental concerns and an increased appreciation for the long-term costs and benefits of various types of flood control and other water resource management techniques. Whereas this shift seems to be evidenced in the higher levels of government and the more sophisticated water resource management agencies, a comparable shift in interests does not seem to be in evidence in the local levels of government which usually reflect the views of the local citizenry. If newer methods of flood control are to be implemented within the study area, the local units of government and the local population, especially the agricultural community, will have to be

convinced that these newer methods are in fact to their economic advantage. After all, the shift now in evidence at the national and state levels has occurred because of increased awareness of environmental and economic relationships. It is not reasonable to expect the local citizenry and agricultural community to change their viewpoint without thorough exposure to the same information.

In order for economic, environmental, and other types of related information to be disseminated to and understood by the local units of government and the local citizenry, it is incumbent on the institutional system to maintain and utilize a public education program. Public education programs are not the same as a public school system, nor are they the same as a public participation program. Public education programs are for the purpose of providing the public with a full understanding of the various issues relevant to specific projects and/or programs. This type of public educational program is a prerequisite to informed public participation. Concerning the issues in this particular overall 639 Study, it has been stated previously in the report that there is a need for a systemwide understanding of the economic issues underlying the various approaches to flood control and water resource management. The need for this understanding is manifest not only in the administering agencies, but also in the units of local government, the local citizenry, and especially the agricultural community since the present flooding incidence is of such great concern to the agricultural community. Companion topics to the public education program on the economic aspects of flood control are: an understanding of the ecological relationships between soil and water management, appreciation of the short-term versus the long-term costs and benefits of the various methods of reducing flood damages and the various factors involved with ensuring the long-term productivity of soil and water resources in the study area

(i.e., stewardship). It is to be emphasized that a prerequisite to an effective public education program which would achieve the objectives discussed above is that those responsible for the design of such a program must be (or become) knowledgeable on the factors (economic and otherwise) which determine the existing agricultural and other land management practices that affect water resource management. Whereas the issues identified in this report may give guidance to this effort, the achievement of an understanding of the factors which dictate present practices must be supplemented by other existing and/or future research.

# APPENDIX A

## AGENCY PROFILES

Appendix A presents a "profile" of specific institutions involved with water resource management in the region specified for study in P.L. 87-639. The profiles include information about the following factors of each institution:

1. Level of government;
2. Major objectives;
3. Major functions or functions relevant to project;
4. Basic staff expertise;
5. Those institutions with which the profiled institution cooperates and/or to which the profiled institution is accountable;
6. Administration of functions on the local level: effective administration of functions on the local level promotes citizen participation while ineffective administration does not promote citizen input.

Minnesota Environmental Quality Board (EQB)

A state agency; major objective is to prevent duplication of state environmental programs; major functions are to assist state agencies in environmental problems and to review and coordinate state environmental policies and programs; staff expertise is administrative.

State Planning Agency (SPA)

A State level agency; major objective is the evaluation of service delivery from the State to the constituency to determine the effectiveness of service delivery; major functions are coordination of State departments on all governmental issues through research and analysis; basic expertise is planning; cooperates with all of the State's departments.

Department of Agriculture (DOA)

A State level agency; major objective is the protection of the agriculture industry; major function is the collection of data and the administration of pollution regulations through monitoring; basic expertise is planning and inspection of agricultural products; cooperation with other agencies including the Pollution Control Agency, Departments of Health and Natural Resources and the Water Planning Board; effectively administrates functions on the local level.

Department of Health (DOH)

A State level agency; major objective of the Environmental Health Division is the protection of public health; major functions are enforcement through regulation of the Safe Drinking Water Act and monitoring of water well construction; major functions include all aspects of management;[1] basic expertise is engineering; hydrology and sanitation; DOH basically cooperates with the Environmental Protection Agency; Pollution Control Agency and the Water Planning Board and Department of Natural Resources; effective administration of functions on the local level.

[1] For an explanation of functions involved in all aspects of water resource mangement, please see the matrix.

Department of Economic Development

A state institution; major objective is to provide and promote an environment for economic expansion and diversification in Minnesota; major functions are to serve as an information resource and to review state plans regarding water resources; staff expertise is administrative; reports to State Planning Agency.

Water Planning Board (WPB)

A state institution; major objective is coordination of water planning among state agencies; major functions are the organization of data into information systems, evaluation of management systems and formulation; staff expertise is administrative, planning and technical reports to the Governor/Legislative and all state agencies.

Water Resources Board (WRB)

A State level agency; major objectives include the establishment of Watershed Districts and aid to the Districts concerning the resolution of water resource conflicts through the interpretation of water law; major function in relation to establishing the Districts is planning and design efforts; basic expertise is engineering; watershed; districts and soil and water conservation districts are the institutions with which the WRB cooperates; effectively administrates functions on the local level.

DNR, Division of Waters

A state institution; major objective is management of water and related land resources; major functions are data collection, analysis and monitoring to develop water quantity; standards for the state including administration of the following state programs: State Flood Plain Management, Flood Control, Coordination, Wild and Scenic Rivers Management, Shoreland Management, and Dam Safety; staff expertise is planning, administrative, engineering and technical; reports to Assistant Commissioner of DNR.

DNR, Division of Fish and Wildlife

A division of a state agency; major objective is to manage fish and wildlife resources for the people of Minnesota; major functions include review and comment, on permit applications, coordination of efforts between U.S. Fish and Wildlife Service, the Soil Conservation Service and the Corps of Engineers and monitoring of water-related projects; reports to Assistant Commissioner of DNR.

Soil and Water Conservation Board (SWCB)

A state institution major objective is to establish soil and water conservation districts to aid citizens in land treatment; major functions are planning and management including administration of the State Flood Control Delopment Program offering technical and financial assistance for flood control; staff expertise is administrative planning, engineering and technical; reports to the River Basin Planning Staff of the Soil Conservation Service.

Southern Minnesota River Basins Board (SMRBB)

A regional institution; major objective is to guide the creation and implementation of a comprehensive environmental conservation and development plan for the Southern Minnesota Rivers Basin; major functions are review of the comprehensive plan for the basin and coordination of the implementation plan among various governmental levels of agencies; staff expertise is administration; reports to the legislature and Regional Development Commissions.

Regional Pollution Control Agency (RPCA)

Regional office of the state Pollution Control Agency; major objective is the abatement and control of pollution; major function is monitoring which provides useful information for all agencies concerned with water resource management while at the same time ensuring that regulations are enforced; staff expertise is inspection; the Regional Office reports to the Senior Executive at the PCA and cooperates with the Departments of Health, Agriculture and Natural Resources and the Soil Conservation Service.

Regional Development Commission (RDC)

A regional agency with two offices located in the P.L. 87-639 study area: one in the Upper Minnesota Valley and one in Southwest; major objective is to prepare and adopt a comprehensive development plan for the region; major function is the coordination of local, state and federal interests in the comprehensive plan; major expertise is planning; reports to State Planning Agency, Department of Economic Development and County Commissioners while cooperating with all institutions in water resource management.

DNR Regional Office

A regional institution; major objectives are to manage water, fish and wildlife resources, to care for state lands and waters and to coordinate field services and operations in southwest Minnesota; major functions in the area of water quantity management involve (1) classification of waters for the Public Waters Inventory; (2) issue Public Water Resource Permits, (3) provide data to local areas to aid them in eligibility for National Flood Insurance; basic staff expertise is well rounded with administrative, financial, engineering and technical employees; reports to the Assistant Commissioner of DNR; effective administration of functions promotes citizen participation.

Minnesota Analysis and Planning System (MAPS)

A state institution; major objective is massive storage of socioeconomic data that is essential to decisionmaking, policy planning, and in-depth study; major functions are to serve as a readily available information source, custom programming, statistical programming, information exchange and other general data processing functions; staff expertise is research, computer systems analysts, programmers.

Area II Minnesota River Basin Projects, Inc. (Area II Projects)

A non-profit corporation formed at the local level through a joint-powers agreement between ten counties; major objective is structural flood control; major function is to manage flood control structures; basic staff expertise is Administration; those institutions with which Area II cooperates are the Watershed Districts and the County Commissioners.

Soil and Water Conservation Districts

A local agency; major objective is to utilize land to its fullest capacity; major functions involve coordination with citizens to offer guidance in methods for utilizing soil to its maximum advantage; staff includes a conservationist; reports to S&WCB; effective administration on the local level promotes citizen participation.

Yellow Medicine County Government

A local organization; major objective is to serve citizens; functions include the monitoring of shoreland and flood plain management programs and to mandate pollution and land use standards through ordinances; also has power to tax; staff expertise includes planners; reports to DNR and PCA; effective administration on the local level; promotes citizen participation.

South Dakota/Minnesota University Agricultural Extension Service

A state institution functioning on the local level; major objective is to assist citizens with problems related to agriculture; major function is to educate farmers by providing them information; staff expertise includes financial, planning engineering and technical; reports to DNR and State and Federal Departments of Agriculture.

State Planning Bureau

A state agency; major objective is coordination of various agency activities including those having jurisdiction over state waters; major functions are coordination of agency activities through review of plans submitted by various agencies throughout the state and assisting local governmental participation in the state comprehensive plan; staff expertise is planning; reports to the Legislature Governor.

South Dakota Department of Agriculture, Division of Conservation

A state agency; major objective is to provide for the conservation of the soil and soil resources for the state; major functions are developing comprehensive state guidelines for soil loss limits to improve water quality, conducting public meetings and workshops for explanation of soil loss limits and monitoring Conservation District's progress on

the adoption of soil loss limits; determines feasibility of land and water for application of irrigation permit (from Water Management Board); staff expertise is administrative and technical.

Industrial Development Expansion Agency

A state agency; major objective is the advancement of the economic welfare of the state; major functions include formulation of plans for the development and utilization of the raw materials, power and water resources of the state, encouragement of the location of new industries and the expansion of existing industries, and promoting and developing products for South Dakota projects; staff expertise is administrative; reports to the legislature and state and federal agencies.

South Dakota Department of Game, Fish and Parks

A statewide agency; major objective is to manage wildlife and fish resources for the benefit and enjoyment of the people of South Dakota; major functions are regulation and control of States game and fish, manage all state land affecting game and fish, land cooperation with the federal government in establishment of fich and wildlife areas in addition to aiding fish restoration projects; basic staff expertise is administrative, financial, scientific and biological; reports to U.S. Forest Service and U.S. Fish and Wildlife Service.

South Dakota Department of Water and Natural Resources

A state agency; major objective is management of South Dakota's water and natural resources to the maximum benefit of its people; major functions are development of information about the geological and hydrological nature of South Dakota, to formulate water policy for its role in state government, and to maintain and improve water quality through permits and appropriations; staff expertise is administrative, financial, technical.

South Dakota Water Resources Commission - Water Rights Division

A state agency; major objective is to regulate and control the conservation and utilization of the public waters of the state to insure the maximum beneficial use to the public for domestic, agricultural and industrial purposes; major functions are to issue water use permits; establish water use control areas, issue licenses for the drilling of water wells, promulgate well regulations, determine feasibility of proposed irrigation districts, pass upon petitions for the organization of water conservancy districts, pass upon the establishment of proposed intrastate drainage projects, pass upon the general improvement plans of all watershed districts,

district board of directors for the South Dakota Conservancy District and review and pass upon the construction of proposed flood control facilities; staff expertise is administrative, legal, engineering.

First Planning District - South Dakota

A regional agency; major objective is to provide planning assistance to localities; major function is to provide greater efficiency in the operation of state government by elimination of duplication and by fostering cooperation; staff expertise is planning; reports to a committee composed of officials throughout the region.

East Dakota Conservancy Subdistrict

A regional institution; major objective is to assist local people in conservation and utilization of the water resources of the area; major functions include financial assistance for the collection of information on groundwater, dissemination of information through news releases, newsletters and public meetings, coordination of federal, state and local agencies working in the subdistrict area and lastly, general assistance in the development of water resource plans and projects; staff expertise is engineering, administrative and technical; reports to agencies involved in financing; effective administration of functions promotes citizen participation.

South Dakota Soil and Water Conservation Districts

A local agency; major objective is conservation of soil and water resources, prevention and control of soil erosion, flood prevention, and the conservation, development, utilization and disposal of water; major functions are the enforcement of land use regulations and the communication of technology related to land use; staff expertise is technical; coordinates with the U.S. Department of Agriculture.

# APPENDIX B
# COMPENDIUM OF WATER RESOURCE LAW

Section 3 of the institutional analysis report includes portions of the pertinent language from the various legislative enactments. This appendix supplements Sec. 3 of the report by providing the actual language of a great deal more of the statutes.

The law relevant to water resources is found scattered throughout the statutes in the federal legislation, in the Minnesota Statutes and to a lesser degree, in the South Dakota Compiled Laws. The Water Resources Research Center in Minnesota has compiled most of the water resources related statutes in two volumes entited the Codified and Uncodified State Laws and Agency Rules and Regulations Bearing on Water and Related Land Resources in Minnesota. This compilation should not be viewed as a substitute for the Minnesota Statutes, but is excellent for the purposes of this compendium. A copy is submitted with this report and is a part of this appendix.

In South Dakota, Volume II-E, Section 1 of the South Dakota Water Plan is entitled "Legal and Institutional Arrangements." This document is also submitted with this report and constitutes a portion of this appendix. This portion of the South Dakota Water Plan also amplifies other portions of this institutional analysis.

At the federal level the relevant statutory titles have been reviewed fairly well in Sec. 3 of the report. One document is submitted with this report as a part of this appendix. The document is a copy of the Federal Register which explains the Fish and Wildlife Coordination Act. The information contained in this document illustrates the extent to which

cooperation among federal agencies can occur to effect the policy objectives of legislative enactments.

There is a danger in a compendium of water resource law. The danger is that it will be used as a substitute for the actual statutes. It is specifically recommended that the actual statutes of the various jurisdictions involved be used directly if need arises to ascertain the law on any point of interest related to water resources. If general information is all that is required, the material in this compendium and the references cited in the bibliography which follows can be used.

The bibliography which follows is presented in two parts. The first portion lists the major references used in the preparation of this report and those of major consequence in an investigation of water resources in this study area. The second list is provided as a further listing of information sources in a different format so as not to lose the benefit of the annotation.

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4. Water Management Work Group of the Minnesota Water Planning Board, Management Problems and Alternate Solutions (Draft), Technical Paper No. 14, February 1979.

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6. W.A. Garton, "South Dakota's System of Water Management and Its Relation to Land Use and Economic Development", South Dakota Law Review, Volume 21, Winter 1976.

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19. Data File Inventory, Minnesota Analysis & Planning System, University of Minnesota, Agricultural Extension Service, 415 Coffey Hall, St. Paul, MN, June 1978

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78W0009571
W78-09571
CODIFIED AND UNCODIFIED STATE LAWS AND AGENCY RULES AND REGULATIONS BEARING ON WATER AND RELATED LAND RESOURCES IN MINNESOTA. VOLUME 1
MINNESOTA UNIV., ST. PAUL. WATER RESOURCES RESEARCH CENTER.
AVAILABLE FROM THE NATIONAL TECHNICAL INFORMATION SERVICE, SPRINGFIELD, VA 22161 AS PB-284 103, IN PAPER COPY, IN MICROFICHE. WRRC BULLETIN 98, JUNE 1978. 885 P. COMPILED BY A. W. LACHAPELLE. OWRT A-999-MINN(47), 14-34-0001-8025.

THIS PUBLICATION IS A SOURCE REFERENCE FOR LAW-MAKERS, ADMINISTRATORS, PLANNERS, LAWYERS, ENGINEERS, AND OTHERS INTERESTED IN WATER RESOURCE USE, DEVELOPMENT, AND MANAGEMENT. IT CONTAINS A COMPILATION OF ALL PERTINENT (1) CODIFIED STATE LAWS AS OF FISCAL YEAR 1977. THE CODIFIED LAWS ARE CONTAINED ENTIRELY IN VOLUME 1 ALONG WITH AN ANALYTICAL TABLE OF CHAPTERS OF INCLUDED STATUTORY MATERIAL WHILE VOLUME 2 WILL CONTAIN THE UNCODIFIED ENACTMENTS AND AGENCY RULES AND REGULATIONS. AND FINALLY THE ENTIRE WORK IS INTENDED TO BE SELF-CONTAINED. ALL TEXTUAL MATERIAL OF MINNESOTA STATUTES, REGULATIONS OR DOCUMENTS REFERRED TO IN THE TEXT IS INCORPORATED INTO THE BULLETIN AS APPROPRIATE UNLESS NOTATED OTHERWISE. TEXTUAL MATERIAL OF FOREGIN OR FEDERAL STATUTES, REGULATIONS, TREATIES OR DOCUMENTS IS NOT INCLUDED AS IT IS BEYOND THE SCOPE OF THIS WORK. (WAELTI-MINNESOTA)

69W0009794
W69-09794
ASPECTS OF WATER RESOURCES LAW IN MINNESOTA.
MAIN, RAYMOND A.; WALTON, WILLIAM C.; HILLS, DAVID L.
MINNESOTA UNIV., MINNEAPOLIS. WATER RESOURCES RESEARCH CENTER.
ASPECTS OF WATER RESOURCES LAW IN MINNESOTA, JUN 1969, BULLETIN P. P 1-142, 142 P, 258 REF.

A COMPILATION OF STATE COURT DECISIONS INCLUDES ANALYSES OF DECISIONS REGARDING: CLASSIFICATION OF WATERS; RIGHTS IN NATURAL SURFACE WATERCOURSES; RIGHTS IN DIFFUSED SURFACE WATERS; RIGHTS IN NATURAL GROUND WATERS; RIGHTS IN ARTIFICIAL WATERCOURSES; PRESCRIPTIVE RIGHTS; OBSTRUCTION AND DIVERSION; TRANSFER AND ASSIGNMENT OF WATER RIGHTS; AND WATER QUALITY. THE COMPILATION OF STATE AND LOCAL STATUTES PRESENTED INCLUDES ANALYSIS OF STATUTES DEALING WITH: THE PERMIT SYSTEM; MINING AND THE DRAINAGE AND DIVERSION OF WATER; COUNTY AND JUDICIAL DRAINAGE SYSTEMS; DAMS AND LAKE WATER LEVELS, IRRIGATION, POLLUTION CONTROL; FISH MANAGEMENT; TOPOGRAPHIC AND GEOLOGICAL SURVEYS; WATER-BORNE TRANSPORTATION; WATER-SAFETY LAWS; STATE AND FEDERAL-STATE PLANNING; JOINT CONTROL OF INTERSTATE WATERS; REGULATORY PROGRAMS; WATER POLICIES OF THE STATE; AND THE NUMEROUS ADMINISTRATIVE BODIES RESPONSIBLE FOR THE FOREGOING. CERTAIN ASPECTS OF FEDERAL STATUTES AND SUPREME COURT DECISIONS ARE ANALYZED WITH REGARD TO THE ROLE OF THE FEDERAL GOVERNMENT AND CONFLICTS OF FEDERAL-STATE JURISDICTION. CONCLUSIONS AND RECOMMENDATIONS ARE MADE IN LIGHT OF THE FORE-GOING ANALYSES. AN APPENDIX CONTAINS AN UNOFFICIAL COMPILATION OF STATUTES DEALING WITH WATER AND RELATED LAND RESOURCES PASSED BY THE 1969 STATE LEGISLATURE. (KEITH-FLA)

78KU009571
#78-09571
CODIFIED AND UNCODIFIED STATE LAWS AND AGENCY RULES AND REGULATIONS BEARING ON WATER AND RELATED LAND RESOURCES IN MINNESOTA. VOLUME I
MINNESOTA UNIV., ST. PAUL. WATER RESOURCES RESEARCH CENTER.
AVAILABLE FROM THE NATIONAL TECHNICAL INFORMATION SERVICE, SPRINGFIELD, VA 22161 AS PB-284 103. IN PAPER COPY, IN MICROFICHE. WRRC BULLETIN 98. JUNE 1978. 685 P. COMPILED BY A. W. LACHAPELLE. OWRT A-999-MINN(47). 14-34-0001-8025.

THIS PUBLICATION IS A SOURCE REFERENCE FOR LAW-MAKERS, ADMINISTRATORS, PLANNERS, LAWYERS, ENGINEERS, AND OTHERS INTERESTED IN WATER RESOURCE USE, DEVELOPMENT, AND MANAGEMENT. IT CONTAINS A COMPILATION OF ALL PERTINENT (1) CODIFIED STATE LAWS AS OF FISCAL YEAR 1977. THE CODIFIED LAWS ARE CONTAINED ENTIRELY IN VOLUME I ALONG WITH AN ANALYTICAL TABLE OF CHAPTERS OF INCLUDED STATUTORY MATERIAL WHILE VOLUME 2 WILL CONTAIN THE UNCODIFIED ENACTMENTS AND AGENCY RULES AND REGULATIONS. AND FINALLY THE ENTIRE WORK IS INTENDED TO BE SELF-CONTAINED. ALL TEXTUAL MATERIAL OF MINNESOTA STATUTES, REGULATIONS OR DOCUMENTS REFERRED TO IN THE TEXT IS INCORPORATED INTO THE BULLETIN AS APPROPRIATE UNLESS NOTATED OTHERWISE. TEXTUAL MATERIAL OF FOREIGN OR FEDERAL STATUTES, REGULATIONS, TREATIES OR DOCUMENTS IS NOT INCLUDED AS IT IS BEYOND THE SCOPE OF THIS WORK. (WAELTI-MINNESOTA)

77WU0505S1
W77-05051
ENVIRONMENTAL LAW: FWPCAA INTERPRETED TO SUBJECT DREDGING OPERATION OF CORPS OF ENGINEERS TO STATE PERMIT PROGRAMS.
MINNESOTA LAW REVIEW, VOL 60, NO 3, P 610-19 (1976).
*FWPCA AMENDMENTS OF 1972, *ADMINISTRATIVE REGULATIONS.

EVALUATED IS A RECENT MINNESOTA CASE CONCERNING THE STATE PERMIT PROGRAM TO REGULATE THE DISCHARGE OF POLLUTANTS FROM WITHIN MINNESOTA INTO NAVIGABLE INTERSTATE WATERS. THE PROGRAM WAS APPROVED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA) UNDER THE FEDERAL WATER POLLUTION CONTROL ACT AMENDMENT OF 1972. MINNESOTA SOUGHT A DECLARATORY JUDGEMENT THAT THE ARMY CORPS OF ENGINEERS MUST OBTAIN A STATE PERMIT FOR ITS DREDGING ACTIVITIES, AND COMPLY WITH THE STATE REGULATIONS. THE DISTRICT COURT REJECTED THE CORPS' CONTENTION THAT THE ACT HAD SPECIFICALLY GRANTED IT POWER TO ISSUE PERMITS AND IT WAS THEREFORE EXEMPT FROM ANY STATE LAWS CONCERNING DREDGING DISCHARGES. THE COURT ALSO HELD THAT THE ACT'S NOTICE PROVISIONS DID NOT APPLY TO A DECLARATORY JUDGEMENT WRIT. ALTHOUGH RECOGNIZING THE DIFFERENT PROVISIONS OF THE ACT WHICH GRANT PERMIT-ISSUING POWER TO THE CORPS, THE AUTHOR SUPPORTS THE COURT'S HOLDING WHICH LIMITED THE CORPS'S POWER TO REGULATE DREDGING TO THOSE OPERATIONS WHERE AN EPA-APPROVED STATE PROGRAM IS ABSENT. STATUTORY LANGUAGE, LEGISLATIVE HISTORY AND POLICY ALL COMPEL THE DECISION THAT THE CORPS' DREDGING OPERATIONS ARE SUBJECT TO RELEVANT MINNESOTA STATUTES AND REGULATIONS. (WELCH-FLORIDA)

74W0013232
W74-13232
AGRICULTURAL DRAINAGE AND THE PUBLIC INTEREST. (PART I).
PETERSON, W. G.
MINNESOTA DEPT. OF NATURAL RESOURCES, ST. PAUL.
THE MINNESOTA VOLUNTEER, P 37-43, JANUARY-FEBRUARY, 1972. 3 ILLUS.

THE MINNESOTA DRAINAGE PROGRAM WAS CONCEIVED IN 1883, FOLLOWING SEVERAL EXTREMELY WET SUMMERS. IT WAS ALSO A TIME WHEN THERE WAS A SHORTAGE OF TILLABLE CROPLAND. THE DRAINAGE PROGRAM, WHICH CONSISTS OF A SERIES OF TAXES AND EMINENT DOMAIN PROCEEDINGS, HAS BEEN BASED UPON BENEFITTING THE GENERAL PUBLIC WELFARE. SINCE ITS INCEPTION THE PUBLIC BENEFITS DERIVED FROM DRAINAGE PROGRAMS HAVE BEEN HIGHLY QUESTIONABLE. CURRENTLY, THE NEED FOR MORE CROPLAND IS QUESTIONABLE SINCE THE FEDERAL GOVERNMENT SUBSIDIZES FARMERS TO KEEP LAND OUT OF PRODUCTION. RECLAIMED MARSHLAND IS USUALLY POOR CROPLAND. THE PUBLIC IS NOT BENEFITTED BY LESS MOSQUITO HABITAT SINCE MALARIA CARRYING MOSQUITOES OCCUR INFREQUENTLY IN MINNESOTA. GENERALLY ONLY ENOUGH WATER IS REMOVED TO KILL MOSQUITO LARVAE PREDATORS, BUT NOT THE MOSQUITO LARVAE. MOREOVER, THE DETRIMENTAL EFFECTS ON THE ENVIRONMENT MAY FAR OUTWEIGH ANY GENERAL PUBLIC BENEFITS. ALTHOUGH THE INDIVIDUAL FARMER MAY WANT WETLANDS, THE EFFECT OF RISING COSTS AND TAXES REQUIRES THAT THE FARMER INCREASE PRODUCTION TO MAKE ENDS MEET. IF THROUGH USE OF MARGINAL FARM LAND, MANY FARMERS DO RAISE THEIR OUTPUT, THE GLUT OF THE MARKET DRIVES PRICES DOWN. (BARNES-FLORIDA)

74K00136231
#74-13231
YOUR LAKE INSURANCE POLICY.
HAMBROCK, M.
MINNESOTA DEPT. OF NATURAL RESOURCES, ST. PAUL. DIV. OF WATERS, SOILS AND MINERALS.
THE MINNESOTA VOLUNTEER. P 11-17. JANUARY-FEBRUARY. 1973. 3 ILLUS.

THE MINNESOTA SHORELAND ZONING ACT PROVIDES MINIMUM STATE-WIDE CRITERIA FOR THE DEVELOPMENT OF NAVIGABLE SURFACE WATERS. THE ACT IS ADMINISTERED ON THE COUNTY LEVEL AND OVERSEEN BY THE STATE DEPARTMENT OF NATURAL RESOURCES. COUNTIES WERE REQUIRED TO SPECIFY MINIMUM CRITERIA FOR RECREATIONAL DEVELOPMENT OF THEIR LAKES AND RIVERS OR TO ADOPT THE STATE-WIDE CRITERIA. ALTHOUGH IDEALLY CRITERIA WOULD BE MODIFIED FOR EACH BODY OF WATER, THE TIME CONSTRAINT IMPOSED BY THE ACT MADE DETERMINATION OF INDIVIDUAL CRITERIA IMPRACTICAL. THE STATE-WIDE PLAN RECOMMENDS THREE USE CLASSIFICATIONS, EACH WITH DIFFERENT CRITERIA. THE FIRST CLASS, NATURAL ENVIRONMENT LAKES AND STREAMS, INCLUDES SMALL LAKES SUBJECT TO RAPID OVERDEVELOPMENT AND EUTROPHICATION. SPECIALLY DESIGNATED TROUT STREAMS AND RIVERS IN THE FEDERAL WILD AND SCENIC RIVERS PROGRAM ARE ALSO IN THIS CLASS. THESE WATERS NEED SIGNIFICANT PROTECTION BECAUSE OF THEIR UNIQUE NATURAL CHARACTERISTICS OR THEIR UNSUITABILITY FOR DEVELOPMENT. THE SECOND CATEGORY, RECREATION DEVELOPMENT LAKES, ARE ALREADY MODERATELY DEVELOPED AND ARE SUITED TO FURTHER DEVELOPMENT AND WATER ORIENTED RECREATION. THE THIRD CLASS, GENERAL DEVELOPMENT LAKES AND STREAMS, ARE THOSE ALREADY HEAVILY DEVELOPED OR ABLE TO WITHSTAND INTENSE DEVELOPMENT. (BARNES-FLORIDA)

74K00136230
#74-13230
RESOLVING WATER RESOURCE MIDDLES.
GERE, E.
MINNESOTA DEPT. OF NATURAL RESOURCES, ST. PAUL. DIV. OF WATERS, SOILS AND MINERALS.
THE MINNESOTA VOLUNTEER. P 2-10, JANUARY-FEBRUARY, 1973. 2 ILLUS.

CONTRADICTORY OBJECTIVES AND PROJECTS EXIST WITHIN MINNESOTA'S WATER RESOURCES PROGRAM. DRAINAGE AND ITS IMPACT ARE TWO CURRENT SOURCES OF DEBATE. MINNESOTA HAS RECLAIMED MORE LAND THROUGH DRAINAGE THAN ANY OTHER STATE EXCEPT INDIANA. HUGE AMOUNTS OF MONEY ARE EXPENDED IN DRAINING NEW LAND AND MAINTAINING EXISTING DRAINAGE SYSTEMS. YET AT THE SAME TIME THE GOVERNMENT PAYS INDIVIDUALS TO KEEP LAND OUT OF PRODUCTION. BOTH STATE AND FEDERAL GOVERNMENTS HAVE BOUGHT LARGE TRACTS OF LAND TO BE MAINTAINED AS NATURAL WETLANDS. THE FEDERAL NATIONAL WATER BANK PROGRAM APPROPRIATED MONEY TO SUBSIDIZE LANDOWNERS WHO WILL RETAIN WATER ON THEIR LAND. MORE IMPORTANT IS THE DELETERIOUS EFFECT ON THE NATURAL ENVIRONMENT GENERATED BY DRAINAGE PROGRAMS. DRAINAGE LOWERS THE GROUND WATER TABLE, MAY ADVERSELY AFFECT WATER QUALITY PARTICULARLY THROUGH SEDIMENTATION, AND DESTROYS RECREATION AREAS AND WILDLIFE HABITAT. DRAINAGE NEED NOT BE STOPPED BUT A CONSIDERATION OF THE OVERALL ENVIRONMENTAL IMPACT SHOULD BE TAKEN INTO ACCOUNT. ANOTHER MAJOR PROBLEM AREA IS IRRIGATION AND WATER APPROPRIATION. RESEARCH AND REGULATION ARE NEEDED TO OPTIMIZE THE USE OF GROUNDWATER RESOURCES. IN ADDITION, EUTROPHICATION IN LAKES HAS CONTINUALLY ACCELERATED AS SHORE DEVELOPMENT CONTINUES. (BARNES-FLORIDA)

[illegible] PLAN FOR WATER RESOURCES.
[illegible] W. E. D.
MINNESOTA DEPT. OF NATURAL RESOURCES. SAINT PAUL.
THE MINNESOTA VOLUNTEER. P 30-32. JANUARY-FEBRUARY. 1973.
*ADMINISTRATIVE REGULATIONS. *STATE POLICY.
[illegible]
ALL RECENTLY STATE GOVERNMENTS HAD NOT DEVELOPED A WATER RESOURCE PLANNING CAPABILITY TO EFFECTIVELY REPRESENT THEIR INTERESTS. MINNESOTA ALSO LACKED DEFINITIVE POLICIES AND COORDINATED STATE AGENCIES RESPONSIBLE FOR WATER RESOURCES. IN 1965 CONGRESS PASSED THE WATER RESOURCES PLANNING ACT (P.L. 89-80) AND THIS SITUATION CHANGED. THE ACT AUTHORIZED THE CREATION OF A FEDERAL-STATE RIVER BASIN COMMISSION. ONE FUNCTIONS WERE TO PLAN FOR WATER RESOURCES MANAGEMENT ON A MULTI-STATE. REGIONAL BASIS. INITIAL COORDINATING OF MINNESOTA'S RESOURCE PLANNING WAS UNDERTAKEN BY THE WATER RESOURCE COORDINATING COMMITTEE (WRCC), FORMED IN MAY 1967. THIS FUNCTION WILL BE ASSUMED BY THE MINNESOTA WATER RESOURCES BOARD WHICH WILL COORDINATE THE PLANNING FUNCTION AMONGST ALL STATE AGENCIES. PRIMARY RESPONSIBILITY FOR PLANNING WILL REST WITH THE BUREAU OF PLANNING IN THE DEPARTMENT OF NATURAL RESOURCES (DNR). THE DNR WILL BE RESPONSIBLE FOR COLLECTING WATER RESOURCES DATA. ESTABLISHING A CENTRAL DATA BANK. AND INVENTORYING MAJOR FEDERAL AND LOCAL GOALS AND PROPOSALS FOR PROGRAMS AFFECTING THE STATE'S WATER RESOURCES. THESE PROPOSALS WILL BE EVALUATED AND REVIEWED BY THE LEGISLATURE. IT IS NECESSARY TO FORMULATE A CONCISE MEANINGFUL STATE POLICY NOTWITHSTANDING THE DIFFICULTY OF BALANCING CONFLICTING INTERESTS. (DILLINGHAM-FLORIDA)

74W0010733
#70-10733
PLAYING TO WIN IN THE DRAINAGE GAME.
PETERSON. W. G.
THE MINNESOTA VOLUNTEER. P 44-49. MARCH-APRIL. 1972. 2 ILLUS.
*ADMINISTRATIVE REGULATIONS. COUNTY BOARD. COUNTY ADMINISTRATION. STATE STATUTES. WATER RIGHTS(NON-RIPARIANS).
06E3056304A
THE MINNESOTA DRAINAGE CODE. LOADED WITH LEGAL CREDIBILITY GAPS. IS STACKED AGAINST THE PRIVATE LANDOWNER. A DRAINAGE PROCEEDING HIGHLIGHTS THE ROLES OF THE DRAINAGE ATTORNEY. DRAINAGE ENGINEER. *VIEWERS*. AND COUNTY BOARD. THEIR INTEREST IN THE CONSTRUCTION OF THE DITCH MAKES IT DIFFICULT FOR THEM TO INDEPENDENTLY AND OBJECTIVELY EVALUATE ITS MERITS. THOSE OPPOSING THE PROJECT ARE DISCOURAGED BY LATE NOTIFICATION OF THE PROPOSAL. BY THE OFTEN POOR COUNSEL OF THE COUNTY BOARD ATTORNEY. AND BY BURDENSOM EXPENSES OF BOTH OPPOSING THE DITCH AND BEING ASSESSED FOR ITS CONSTRUCTION. RARELY DOES THE OPPOSITION DEFEAT A DRAINAGE DITCH PROPOSAL. STRENUOUS USE OF MINNESOTA'S LAWS FOR ENVIRONMENTAL SAFEGUARDS SHOULD BE USED TO FIGHT DITCH CONSTRUCTION. A PERMIT MUST BE OBTAINED FROM THE COMMISSIONER OF NATURAL RESOURCES WHEN A PROPOSED DITCH WILL AFFECT PUBLIC WATERS. THE COUNTY BOARD MUST GIVE DUE CONSIDERATION OF THE NATURAL RESOURCES AFFECTED. COMPENSATION MUST BE PAID TO THE STATE IF THE DITCH MUST BE CONSTRUCTED DESPITE IT BEING INJURIOUS TO STATE CONSERVATION LANDS. DUE REGARD MUST BE PAID TO THE ENVIRONMENTAL RIGHTS ACT (1971). (DILLINGHAM-FLORIDA)

74K00010519
#74-10519
NEW #ATER LAWS--#HAT THEY MEAN TO YOU.
SEYMOUR, L.
MINNESOTA DEPT. OF NATURAL RESOURCES. ST. PAUL. DIV. OF #ATERS. SOILS AND MINERALS.
THE MINNESOTA VOLUNTEER. P 54-62. JANUARY/FEBRUARY 1974.

IN 1973 THE MINNESOTA LEGISLATURE ENACTED SEVERAL SIGNIFICANT #ATER LAWS. THE #ATER RESOURCES PERMIT LAWS REDEFINE AND INCREASE THE REGULATORY SCOPE OF THE DEPARTMENT OF NATURAL RESOURCES (DNR) TO INCLUDE ALL NATURAL #ATERS AND #ATERS BENEFICIAL TO PUBLIC USE. DNR MAY REQUIRE AN IMPACT STATEMENT FROM ANY DEVELOPER TO SHOW THAT THE DEVELOPMENT IS REASONABLE, PRACTICAL, AND #ILL ADEQUATELY PROTECT PUBLIC SAFETY AND PROMOTE THE GENERAL #ELFARE. GENERALLY, THE LAW REQUIRES A PERMIT AND THE PERMIT IS NOT A RIGHT BUT A PRIVILEGE. THE STATE DRAINAGE CODE DIRECTS DNR TO DEVELOP CRITERIA FOR ESTABLISHING AND IMPROVING DRAINAGE SYSTEMS. DNR IS TO CONSIDER PRIVATE AND PUBLIC COST-BENEFIT ANALYSIS. AVAILABILITY OF AGRICULTURAL LAND, FLOODING CHARACTERISTICS OF LAND, ALTERNATIVE CONSERVATION AND #ATER ALLOCATION MEASURES, #ATER QUALITY, EFFECT ON #ILDLIFE AND FISHERIES, GROUND #ATER AVAILABILITY AND A COMPOSITE ENVIRONMENTAL IMPACT STATEMENT. THE MUNICIPAL SHORELAND MANAGEMENT ACT GIVES DNR THE AUTHORITY TO INCLUDE INCORPORATED MUNICIPALITIES INTO MINNESOTA'S SHORELAND MANAGEMENT PROGRAM. DNR #ILL ALSO MINISTER FLOOD PLAIN MANAGEMENT PROGRAMS AND DAM MANAGEMENT PROCEDURES. THE CO-ORDINATION OF THESE FUNCTIONS #ILL ALLOW MORE EFFECTIVE AND SAFER USE OF RIVERS AND RESERVOIRS. (BARNES-FLORIDA)

73K00003311
#73-03311
COMMENTS ON #ATER LAWS IN MINNESOTA.
HAIR, R. A.
MINNESOTA UNIV., ST. PAUL. #ATER RESOURCES RESEARCH CENTER.
GROUND #ATER. VOL 8, NO 4, P 4-10, 1970. 2 REF.

SPECIFIC ASPECTS OF #ATER AND RELATED LAND RESOURCE LA# IN MINNESOTA ARE ANALYZED AND DISCUSSED. THE ANALYSIS IS BASED UPON PERTINENT STATE AND FEDERAL LEGISLATION, COURT DECISIONS, AND MUNICIPAL ORDINANCES RELATING TO #ATER RESOURCES. CITATIONS ARE OMITTED. THE STATE OF EXISTING LA#, THE ADEQUACY OF SUCH LA#, AND SUGGESTED JUDICIAL AND LEGISLATIVE ALTERNATIVES ARE PRESENTED. THE FOLLOWING SUBJECT AREAS ARE ANALYZED: (1) STATE ADMINISTRATION OF #ATER RESOURCES. (2) #ATER RESOURCE POLICIES. (3) ADEQUACY OF EXISTING RIPARIAN RIGHTS DOCTRINE. (4) ADEQUACY OF LEGISLATION REGULATING #ATER PERMITS. (5) SCIENTIFIC AND LEGAL CLASSIFICATIONS OF #ATER. (6) CONFLICTS OF FEDERAL-STATE #ATER JURISDICTION. AND (7) CONSTRAINTS ON DEVELOPMENT OF #ATER RESOURCES. (FARL-FLORIDA)

73K0000726
W73-00726
A FOUR STATE COMPARATIVE ANALYSIS OF PUBLIC RIGHTS IN WATER.
WAITE, G. G.
WISCONSIN UNIV., MADISON. WATER RESOURCES CENTER.
DEPARTMENT OF LAW. UNIVERSITY EXTENSION, UNIVERSITY OF WISCONSIN. JUNE 15, 1967. 59 P, 140 REF.
*PUBLIC TRUST DOCTRINE.

THE MODERN LAW OF *PUBLIC RIGHTS* IN WATER IS ANALYZED WITH A COMPARISON OF THE LAW OF MINNESOTA, WISCONSIN, INDIANA, AND OHIO. PUBLIC RIGHTS GENERALLY INHERE IN SUCH USES AS NAVIGATION, FISHING, AND OTHER ACTIVITIES PRINCIPALLY RECREATIONAL IN NATURE. THE COMMON-LAW NAVIGABLE IN FACT TEST IS MOST FREQUENTLY USED TO DETERMINE THE WATERS TO WHICH PUBLIC RIGHTS INHERE. THE FOUR STATES SEEM TO FOLLOW DIFFERENT TESTS OF NAVIGABILITY. ALL FOUR STATES RECOGNIZE THE SAME PUBLIC RIGHTS IN WATER. VARIATIONS AMONG THE STATES MAY BE VIEWED AS EXCEPTIONS TO THE GENERAL RULE THAT ALL LEGITIMATE RECREATIONAL USES OF WATER ARE PROTECTED PUBLIC RIGHT. THE SIGNIFICANT DIFFERENCES AMONG THE FOUR STATES ARE ALL MATTERS OF BASIC PRINCIPLE RATHER THAN SPECIFIC ACTIVITY THAT IS RECOGNIZED AS LYING WITHIN THE PUBLIC RIGHTS. THESE DIFFERENCES ARE ATTRIBUTABLE TO WHETHER THE PUBLIC RIGHTS WERE CREATED BY THE LEGISLATURE OR COURT, WHETHER THEY ARE PROPERTY RIGHTS OR POLICE REGULATIONS, AND WHETHER THEY EXIST IN ALL THE WATERS IN WHICH THEY ARE ABLE TO BE EXERCISED. ALSO COMPARED IS THE TRUST DOCTRINE VS. PUBLIC EASEMENT AND DELEGABILITY OF THE PUBLIC TRUST IN WATER. (BEARDSLEY-FLORIDA)

B-13

72K0014438
W72-14438
WATER RESOURCES ADMINISTRATION IN MINNESOTA - 1972.
WALTON, W. C.
MINNESOTA UNIV., MINNEAPOLIS. WATER RESOURCES RESEARCH CENTER.
AVAILABLE FROM THE NATIONAL TECHNICAL INFORMATION SERVICE AS PB-212 277, $3.00 IN PAPER COPY, $0.95 IN MICROFICHE. WATER RESOURCES RESEARCH CENTER, BULLETIN 49, APRIL 1972. 164 P, 15 REF. OWRR A-021-MINN (4)

*STATE GOVERNMENTAL REORGANIZATION, *LEGISLATIVE PROCESS, *STATE ENVIRONMENTAL POLICY, FEDERAL GOVERNMENTAL REORGANIZATION, CITIZEN PARTICIPATION, VIEWPOINTS, ASSOCIATIONS.

IN 1970, MINNESOTA'S STATE GOVERNMENT CONTAINED AT LEAST 21 DEPARTMENTS, AGENCIES, BOARDS, COMMISSIONS, COMMITTEES, ETC. WITH WATER AND RELATED LAND RESOURCES RESPONSIBILITIES. EXPENDITURES BY THESE ORGANIZATIONS INCREASED FROM $5.7 MILLION IN 1950 TO $31.9 MILLION IN 1970. ABOUT 86% OF EXPENDITURES WERE MADE BY THE DEPARTMENT OF CONSERVATION. TOTAL STATE AGENCY STAFF COMPLEMENTS INCREASED FROM 1,100 IN 1960 TO 1,400 IN 1970. PRIME RESPONSIBILITY FOR WATER AND RELATED LAND RESOURCES PROGRAMS RESTED IN 3 COMMITTEES OF THE SENATE AND 2 COMMITTEES IN THE HOUSE. THE GOVERNOR'S AND LEGISLATURE'S CONTROL OF THE STATE'S ADMINISTRATIVE APPARATUS IS HAMPERED THROUGH FRAGMENTED ORGANIZATION. IN 1970, THERE WERE 5 INTERNATIONAL, 5 REGIONAL, 3 INTERSTATE, AND 4 FEDERAL-STATE ORGANIZATIONS WITH PROGRAMS IN THE STATE. FEDERAL RESPONSIBILITIES IN WATER AND RELATED LAND RESOURCES PLANNIN PUMPING, REHABILITATION OF A SMALL FLOWAGE, URBAN RUNOFF, CHARACTERIZATION PRIVATE CONTROLS FOR RECREATIONAL LAND DEVELOPMENT, SHORELAND DEVELOPMENT, AND LAKE REHABILITATION LEGISLATION AND PROGRAMS. THE PROGRESS OF MINNESOTA'S SHORELAND PROGRAM AND ACTIVITIES IN LAKE DEMONSTRATION PROJECTS WAS DESCRIBED. ALUM WAS USED SUCCESSFULLY FOR CHEMICAL INACTIVATION OF NUTRIENTS IN AN OVERFERTILIZED SMALL LAKE IN WISCONSIN. DILUTIONAL PUMPING RESULTED IN SOME SUCCESS IN REDUCING THE PHOSPHORUS CONTENT OF ANOTHER LAKE. PLASTIC SHEETING, IN COMBINATION WITH SAND AND GRAVEL BLANKETS ON THE BED OF A MILLPOND, WAS USED TO CONTROL AQUATIC PLANTS. WITH REGARD TO WATER-ORIENTED RECREATIONAL DEVELOPMENTS, IT WAS SUGGESTED THAT AN AUTOMATIC PROPERTY OWNERS ASSOCIATION CAN PROVIDE A MECHANISM FOR MAINTAINING AND MANAGING THE COMMON OPEN SPACE AND FACILITIES TO WHICH INDIVIDUAL LAKE LOT OWNERS HAVE COMMON RIGHTS. A NATION-WIDE SURVEY DISCLOSED THAT EXPLICIT STATUTES SAYING THAT A LOCAL UNIT OF GOVERNMENT OR STATE AGENCY IS AUTHORIZED TO PROJECT, MANAGE, OR REHABILITATE LAKES ARE RARE. (WALTON-MINNESOTA)

69KU009800
W69-09800
CONCLUSIONS AND RECOMMENDATIONS.
MAIR, RAYMOND A.; WALTON, WILLIAM C.; MILLS, DAVID L.
MINNESOTA UNIV., MINNEAPOLIS. WATER RESOURCES RESEARCH CENTER.
ASPECTS OF WATER RESOURCES LAW IN MINNESOTA. JUN 1969. BULLETIN 2, P 97-105, 8 P.
*FEDERAL POLICY, *STATE POLICY, COOPERATION.

TO INCREASE THE WORKING EFFICIENCY OF THE NUMEROUS ORGANIZATIONS PARTICIPATING IN WATER RESOURCES ACTIVITIES CARRIED ON WITHIN THE STATE, RESPONSIBILITY FOR COMPREHENSIVE COORDINATION AND COOPERATION SHOULD BE CENTRALIZED; EFFORTS TO ACHIEVE THIS GOAL HAVE THUS FAR PROVED UNFRUITFUL. THE STATE'S COMBINED COMMON LAW AND STATUTORY SCHEME FOR DETERMINATION OF RELATIVE RIGHTS WITH RESPECT TO WATER USE IS WELL ADAPTED TO THE NEEDS OF THE STATE. THE STATE'S IRRIGATION POLICY SHOULD BE BASED ON HYDROLOGIC CONDITIONS. THE WATER PERMIT SYSTEM SHOULD ALLOW FOR CONTROLLED TRANSFERS AND DIVERSIONS OF WATER FROM ONE WATERSHED TO ANOTHER. THE PERMIT SYSTEM NEEDS MODIFICATION TO REDUCE THE UNCERTAINTY OF WATER RIGHTS, AND TO PROVIDE DEFINITE CRITERIA FOR PERMIT GRANTING. THE PRESENT LEGAL CLASSIFICATION OF WATER SHOULD BE REPLACED BY HYDROLOGIC CLASSIFICATIONS. THE STATE SHOULD TAKE GREATER RESPONSIBILITY IN THE AREA OF FLOOD CONTROL. CONGRESS SHOULD CURTAIL THE EXTENT TO WHICH THE FEDERAL GOVERNMENT EXERCISES ITS POWERS IN THE AREA OF WATER RESOURCES AND SHOULD GIVE STATES AND LOCALITIES A STRONGER VOICE IN FEDERAL PROGRAMS. (KEITH-FLA)

69KU009799
W69-09799
ASPECTS OF FEDERAL STATUTES AND SUPREME COURT DECISIONS.
MAIR, RAYMOND A.; WALTON, WILLIAM C.; MILLS, DAVID L.
MINNESOTA UNIV., MINNEAPOLIS. WATER RESOURCES RESEARCH CENTER.
ASPECTS OF WATER RESOURCES LAW IN MINNESOTA. JUN 1969. BULLETIN 2, P 79-96, 17 P, 47 REF.
*FEDERAL POLICY, CONSTITUTIONAL AUTHORITY.

A DISCUSSION OF THE FEDERAL GOVERNMENT'S IMPACT ON THE FIELD OF WATER LAW BEGINS WITH A CONSIDERATION OF THE CONSTITUTIONAL AUTHORITY FOR FEDERAL PARTICIPATION AND THEIR HISTORICAL ENTRY INTO THE FIELD. AN ANALYSIS OF THE ROLE OF FEDERAL GOVERNMENT INCLUDES DISCUSSIONS OF FEDERAL CASES AND STATUTES, DEFINES THE JURISDICTION OF THE FEDERAL GOVERNMENT, AND MAKES THE POINT THAT FEDERAL REGULATIONS CONTROL OVER STATE LAW IN CASE OF CONFLICT. SEPARATE DISCUSSIONS EXPLORE THE EXPANDING ROLE OF THE FEDERAL GOVERNMENT IN THE AREAS OF FLOOD CONTROL, WATER RESOURCES DEVELOPMENT, MULTIPLE-PURPOSE WATER RESOURCE DEVELOPMENT PROJECTS, WATER POLLUTION, AND RECREATIONAL USE OF WATER. TWO DISCUSSIONS CENTER AROUND CRITICISMS AIMED AT THE FEDERAL GOVERNMENT: ITS FORCING OF THE STATES TO BYPASS THEIR EXISTING GOVERNMENTAL UNITS BECAUSE OF FEDERAL FINANCIAL INCENTIVES, AND ITS FAILURE TO REQUIRE INTEGRATION OF EFFORTS UNDER A COMPREHENSIVE PLAN COVERING ALL INVOLVED GOVERNMENTAL UNITS AND AGENCIES. A DISCUSSION OF CONFLICTS OF FEDERAL-STATE JURISDICTION BEGINS BY POINTING OUT THAT BY LOOKING AT 'JURISDICTION' IN THE SENSE OF 'POWER TO ACT', THE FEDERAL GOVERNMENT IS SHOWN TO HAVE ALMOST UNLIMITED JURISDICTION OVER WATER. WHILE THE NEED FOR A NATIONAL WATER RESOURCES POLICY IS CONCEDED, METHODS FOR RESOLVING CONFLICTS ARE PROPOSED. (KEITH-FLA)

69K0009797
W69-09797
ASPECTS OF STATE STATUTES I.
MAIR, RAYMOND A.; WALTON, WILLIAM C.; MILLS, DAVID L.
MINNESOTA UNIV., MINNEAPOLIS. WATER RESOURCES RESEARCH CENTER.
ASPECTS OF WATER RESOURCES LAW IN MINNESOTA, JUN 1969, BULLETIN, P 39-51, 12 P, 34 REF.

A COMPILATION OF STATE STATUTES DEALING WITH WATER LAW IS PRESENTED. EACH STATUTE IS ACCOMPANIED BY A DISCUSSION OF HOW IT DOES OR MAY AFFECT THE CORRESPONDING COMMON LAW DEALING WITH WATER LAW. GENERAL CHARGE AND CONTROL OVER THE WATERS OF THE STATE AND OF THEIR DISPOSITION IS GIVEN TO THE COMMISSIONER OF CONSERVATION. HE IS GIVEN THE POWER TO DEVISE AND DEVELOP A GENERAL WATER RESOURCES CONSERVATION PROGRAM FOR THE STATE, WHICH PROGRAM SHALL CONTEMPLATE THE CONSERVATION, ALLOCATION, AND DEVELOPMENT OF ALL THE WATERS OF THE STATE FOR THE BEST INTERESTS OF THE PEOPLE. THE STATE PERMIT SYSTEM IN THEORY ADOPTS AN APPROPRIATION CONCEPT, BUT IN PRACTICE RELIES HEAVILY ON COMMON LAW CONCEPTS TO REGULATE WATERS. A WATER RESOURCES BOARD IS AUTHORIZED IN ORDER TO PROVIDE A FORUM FOR RESOLUTION OF CONFLICTING PUBLIC INTERESTS. PERMITS FOR DRAINAGE, DIVERSION, CONTROL, OR USE OF WATER CAN BE GRANTED WHEN NECESSARY FOR MINING. COUNTY BOARDS AND DISTRICT COURTS ARE AUTHORIZED TO CONSTRUCT AND MAINTAIN PUBLIC DRAINAGE SYSTEMS. DAMS AND LAKE WATER LEVELS ARE SPECIFICALLY REGULATED. DRAINAGE, CONSERVANCY, AND WATERSHED DISTRICTS ARE AUTHORIZED, AND THEIR POWERS AND RESPONSIBILITIES ARE ENUMERATED. IRRIGATION IS REGULATED. POLLUTION IS HEAVILY REGULATED AND SEVERAL AGENCIES POLICE ITS REGULATION. (KEITH-FLA)

69K0009796
W69-09796
STATE JUDICIAL DETERMINATION OF RIGHTS RELATIVE TO DIFFUSED SURFACE WATERS, NATURAL GROUND WATERS, ARTIFICIAL WATERCOURSES, AND OTHER COMMON LAW PRINCIPLES.
MAIR, RAYMOND A.; WALTON, WILLIAM C.; MILLS, DAVID L.
MINNESOTA UNIV., MINNEAPOLIS. WATER RESOURCES RESEARCH CENTER.
ASPECTS OF WATER RESOURCES LAW IN MINNESOTA, BULLETIN 2, JUN 1969, P 22-37, 15 P, 68 REF.

THE STATE COURTS FIRST USED THE COMMON ENEMY DOCTRINE IN DECIDING DISPUTES REGARDING DIFFUSED SURFACE WATER. THE COURTS NOW USE THE REASONABLE USE DOCTRINE IN DECIDING SUCH DISPUTES AND HAVE LAID DOWN GUIDELINES FOR ITS APPLICATION. THE STATE COURTS HAVE REJECTED THE ABSOLUTE OWNERSHIP RULE AND CORRELATIVE RIGHTS DOCTRINE IN DETERMINING RELATIVE RIGHTS TO NATURAL GROUND WATERS; THE REASONABLE USE DOCTRINE IS USED INSTEAD. ALTHOUGH NO STATE COURT HAS DECIDED A CASE INVOLVING RELATIVE RIGHTS IN ARTIFICIAL WATERCOURSES, THE COURTS' TENDENCY TO TREAT ARTIFICIAL WATERCOURSES SUBSTANTIALLY THE SAME AS NATURAL ONES INDICATES THAT THE COURTS WILL APPLY THE REASONABLE USE DOCTRINE TO ARTIFICIAL WATERCOURSES. THE CIRCUMSTANCES UNDER WHICH THE COURTS HAVE HELD FOR PRESCRIPTIVE RIGHTS WITH RESPECT TO RIPARIAN OWNERS ON ALTERED NATURAL WATERCOURSES AND OWNERS OF LAND ON WHICH DIFFUSED SURFACE WATERS ARE DISCHARGED ARE SET FORTH. THE CIRCUMSTANCES UNDER WHICH OBSTRUCTION AND DIVERSION ARE PERMITTED AND PROHIBITED BY THE COURTS ARE DISCUSSED. THE COURTS HAVE RULED THAT RIPARIAN RIGHTS MAY BE ASSIGNED TO NON-RIPARIAN OWNERS, BUT IT IS NOTED THAT THE STATUTORY PERMIT SYSTEM HAS LARGELY ABROGATED SUCH RULINGS. REMEDIES FOR PRIVATE AND PUBLIC POLLUTION ARE DISCUSSED. (KEITH-FLA)

:69W0009800
/69-09800
CONCLUSIONS AND RECOMMENDATIONS.
HAIR, RAYMOND A.; WALTON, WILLIAM C.; HILLS, DAVID L.
MINNESOTA UNIV., MINNEAPOLIS. WATER RESOURCES RESEARCH CENTER.
ASPECTS OF WATER RESOURCES LAW IN MINNESOTA. JUN 1969. BULLETIN 2, P 97-105. 8 P.
*FEDERAL POLICY, *STATE POLICY, COOPERATION.

TO INCREASE THE WORKING EFFICIENCY OF THE NUMEROUS ORGANIZATIONS PARTICIPATING IN WATER RESOURCES ACTIVITIES CARRIED ON WITHIN THE STATE, RESPONSIBILITY FOR COMPREHENSIVE COORDINATION AND COOPERATION SHOULD BE CENTRALIZED; EFFORTS TO ACHIEVE THIS GOAL HAVE THUS FAR PROVED UNFRUITFUL. THE STATE'S COMBINED COMMON LAW AND STATUTORY SCHEME FOR DETERMINATION OF RELATIVE RIGHTS WITH RESPECT TO WATER USE IS WELL ADAPTED TO THE NEEDS OF THE STATE. THE STATE'S IRRIGATION POLICY SHOULD BE BASED ON HYDROLOGIC CONDITIONS. THE WATER PERMIT SYSTEM SHOULD ALLOW FOR CONTROLLED TRANSFERS AND DIVERSIONS OF WATER FROM ONE WATERSHED TO ANOTHER. THE PERMIT SYSTEM NEEDS MODIFICATION TO REDUCE THE UNCERTAINTY OF WATER RIGHTS, AND TO PROVIDE DEFINITE CRITERIA FOR PERMIT GRANTING. THE PRESENT LEGAL CLASSIFICATION OF WATER SHOULD BE REPLACED BY HYDROLOGIC CLASSIFICATIONS. THE STATE SHOULD TAKE GREATER RESPONSIBILITY IN THE AREA OF FLOOD CONTROL. CONGRESS SHOULD CURTAIL THE EXTENT TO WHICH THE FEDERAL GOVERNMENT EXERCISES ITS POWERS IN THE AREA OF WATER RESOURCES AND SHOULD GIVE STATES AND LOCALITIES A STRONGER VOICE IN FEDERAL PROGRAMS. (KEITH-FLA)

/69W0009799
W69-09799
ASPECTS OF FEDERAL STATUTES AND SUPREME COURT DECISIONS.
HAIR, RAYMOND A.; WALTON, WILLIAM C.; HILLS, DAVID L.
MINNESOTA UNIV., MINNEAPOLIS. WATER RESOURCES RESEARCH CENTER.
ASPECTS OF WATER RESOURCES LAW IN MINNESOTA. JUN 1969. BULLETIN 2, P 79-96. 17 P. 47 REF.
*FEDERAL POLICY, CONSTITUTIONAL AUTHORITY.

A DISCUSSION OF THE FEDERAL GOVERNMENT'S IMPACT ON THE FIELD OF WATER LAW BEGINS WITH A CONSIDERATION OF THE CONSTITUTIONAL AUTHORITY FOR FEDERAL PARTICIPATION AND THEIR HISTORICAL ENTRY INTO THE FIELD. AN ANALYSIS OF THE ROLE OF FEDERAL GOVERNMENT INCLUDES DISCUSSIONS OF FEDERAL CASES AND STATUTES, DEFINES THE JURISDICTION OF THE FEDERAL GOVERNMENT, AND MAKES THE POINT THAT FEDERAL REGULATIONS CONTROL OVER STATE LAW IN CASE OF CONFLICT. SEPARATE DISCUSSIONS EXPLORE THE EXPANDING ROLE OF THE FEDERAL GOVERNMENT IN THE AREAS OF FLOOD CONTROL, WATER RESOURCES DEVELOPMENT, MULTIPLE-PURPOSE WATER RESOURCE DEVELOPMENT PROJECTS, WATER POLLUTION, AND RECREATIONAL USE OF WATER. TWO DISCUSSIONS CENTER AROUND CRITICISMS AIMED AT THE FEDERAL GOVERNMENT: ITS FORCING OF THE STATES TO BYPASS THEIR EXISTING GOVERNMENTAL UNITS BECAUSE OF FEDERAL FINANCIAL INCENTIVES, AND ITS FAILURE TO REQUIRE INTEGRATION OF EFFORTS UNDER A COMPREHENSIVE PLAN COVERING ALL INVOLVED GOVERNMENTAL UNITS AND AGENCIES. A DISCUSSION OF CONFLICTS OF FEDERAL-STATE JURISDICTION BEGINS BY POINTING OUT THAT BY LOOKING AT 'JURISDICTION' IN THE SENSE OF 'POWER TO ACT', THE FEDERAL GOVERNMENT IS SHOWN TO HAVE ALMOST UNLIMITED JURISDICTION OVER WATER. WHILE THE NEED FOR A NATIONAL WATER RESOURCES POLICY IS CONCEDED, METHODS FOR RESOLVING CONFLICTS ARE PROPOSED. (KEITH-FLA)

#5K0001120
W75-01120
PLAIN TALK ABOUT FLOOD PLAINS.
WRIGHT, J. M.
MINNESOTA DEPT. OF NATURAL RESOURCES, ST. PAUL. DIV. OF WATERS, SOILS AND MINERALS.
THE MINNESOTA VOLUNTEER, P 38-44, JANUARY-FEBRUARY, 1973. 4 FIG.
*ADMINISTRATIVE REGULATIONS.

METHODS ARE INDICATED BY WHICH FLOOD DAMAGES CAN BE REDUCED IN MINNESOTA. THE BACKGROUND OF FLOOD MANAGEMENT CONTROL DESCRIBES THE SETTLERS' PREDISPOSITION TO SETTLE NEAR WATERCOURSES, THE RELIANCE ON LOCAL GOVERNMENT AID AFTER FLOODS, THE INITIATION OF FEDERAL AID IN THE FLOOD CONTROL ACT OF 1936, AND THE TRADITIONAL EMPHASIS ON CONTROL OF FLOODS AND THEIR EFFECTS. THE CONTROL IS NO LONGER RECOGNIZED AS THE SOLE MEANS OF SOLVING FLOOD PROBLEMS. EXPENSE, ENVIRONMENTAL CONCERNS AND CONTINUING DEVELOPMENT OUTSIDE THE PROTECTED AREAS ARE OTHER CONSIDERATIONS. THE BEST SOLUTION, DELINEATED IN THE FLOOD PLAIN MANAGEMENT ACT (1969), IS A COMPREHENSIVE FLOOD PLAIN MANAGEMENT APPROACH UTILIZING TRADITIONAL MEASURES WHERE JUSTIFIED. IN CONJUNCTION WITH EFFECTIVE REGULATORY CONTROLS, DEVELOPMENT POLICIES AND PROGRAMS, AND COMPREHENSIVE LAND USE PLANNING. THE CHANGE TO THIS COMPREHENSIVE APPROACH HAS BEEN SLOW AND DIFFICULT BECAUSE LOCAL OFFICIALS HAVE BEEN RELUCTANT TO VARY FROM PAST PROCEDURES AND THE POLICY OF THE FEDERAL GOVERNMENT. THE DETAILED STUDIES NECESSARY TO IMPLEMENT SUCH A POLICY ARE PRESENTLY LACKING. THE RESEARCH AND DEVELOPMENT ASSISTANCE PROGRAMS OF THE MINNESOTA DEPARTMENT OF THE NATURAL RESOURCES, THE CORPS OF ENGINEERS, THE U.S. GEOLOGICAL SURVEY AND THE SOIL CONSERVATION SERVICE ARE DESIGNED TO PROVIDE THE NECESSARY INFORMATION. (DILLINGHAM-FLORIDA)

#4K0010519
W74-10519
NEW WATER LAWS--WHAT THEY MEAN TO YOU.
SEYMOUR, L.
MINNESOTA DEPT. OF NATURAL RESOURCES, ST. PAUL. DIV. OF WATERS, SOILS AND MINERALS.
THE MINNESOTA VOLUNTEER, P 54-62, JANUARY/FEBRUARY 1974.

IN 1973 THE MINNESOTA LEGISLATURE ENACTED SEVERAL SIGNIFICANT WATER LAWS. THE WATER RESOURCES PERMIT LAWS REDEFINE AND INCREASE THE REGULATORY SCOPE OF THE DEPARTMENT OF NATURAL RESOURCES (DNR) TO INCLUDE ALL NATURAL WATERS AND WATERS BENEFICIAL TO PUBLIC USE. DNR MAY REQUIRE AN IMPACT STATEMENT FROM ANY DEVELOPER TO SHOW THAT THE DEVELOPMENT IS REASONABLE, PRACTICAL, AND WILL ADEQUATELY PROTECT PUBLIC SAFETY AND PROMOTE THE GENERAL WELFARE. GENERALLY, THE LAW REQUIRES A PERMIT AND THE PERMIT IS NOT A RIGHT BUT A PRIVILEGE. THE STATE DRAINAGE CODE DIRECTS DNR TO DEVELOP CRITERIA FOR ESTABLISHING AND IMPROVING DRAINAGE SYSTEMS. DNR IS TO CONSIDER PRIVATE AND PUBLIC COST-BENEFIT ANALYSIS, AVAILABILITY OF AGRICULTURAL LAND, FLOODING CHARACTERISTICS OF LAND, ALTERNATIVE CONSERVATION AND WATER ALLOCATION MEASURES, WATER QUALITY, EFFECT ON WILDLIFE AND FISHERIES, GROUND WATER AVAILABILITY AND A COMPOSITE ENVIRONMENTAL IMPACT STATEMENT. THE MUNICIPAL SHORELAND MANAGEMENT ACT GIVES DNR THE AUTHORITY TO INCLUDE INCORPORATED MUNICIPALITIES INTO MINNESOTA'S SHORELAND MANAGEMENT PROGRAM. DNR WILL ADMINISTER FLOOD PLAIN MANAGEMENT PROGRAMS AND DAM MANAGEMENT PROCEDURES. THE CO-ORDINATION OF THESE FUNCTIONS WILL ALLOW MORE EFFECTIVE AND SAFER USE OF RIVERS AND RESERVOIRS. (BARNES-FLORIDA)

/UKU0003039
*70-03039
STATE ORGANIZATIONS FOR WATER RESOURCES PLANNING.
HUGGAN, DANIEL H.
AM WATER WKS ASSN J. VOL 61, NO 12, P 667-674, DEC 1969. 8 P, 1 REF.
*UNITED STATES WATER RESOURCES COUNCIL.

A STUDY WAS MADE OF FIVE STATE WATER PLANNING AGENCIES TO DETERMINE THE MOST EFFICIENT ORGANIZATIONAL STRUCTURE FOR WATER RESOURCES PLANNING AND ADMINISTRATION. THIS STUDY ANALYZED THE CALIFORNIA DEPARTMENT OF WATER RESOURCES, MINNESOTA STATE PLANNING AGENCY, NEW YORK RESOURCES WATER COMMISSION, TEXAS WATER DEVELOPMENT BOARD, AND THE UTAH DIVISION OF WATER RESOURCES. THE STUDY RESULTED IN SEVERAL RECOMMENDATIONS AS TO THE ORGANIZATION OF A MODEL WATER RESOURCES AGENCY. WATER RESOURCES DEVELOPMENT CAN BEST BE MANAGED BY ONE STATE EXECUTIVE AGENCY UNDER A SINGLE CHIEF EXECUTIVE. RELATED CONSERVATION AREAS SUCH AS WILDLIFE, PARKS, AND RECREATION SHOULD BE COMBINED UNDER THE SAME AGENCY AS WATER RESOURCES PLANNING. THE AGENCY STAFF SHOULD BE MADE UP OF SPECIALISTS AND BE ADEQUATELY EQUIPPED AND FINANCED. SPECIAL EFFORTS SHOULD BE MADE TO COORDINATE EXECUTIVE AND LEGISLATIVE PROGRAMS. THE EXPERTISE AND RESEARCH FACILITIES OF UNIVERSITIES SHOULD BE UTILIZED. REQUESTS OF SPECIAL INTEREST GROUPS SHOULD BE CONSIDERED IN DEFINING POLICY. THE STATE SHOULD COORDINATE ITS WATER PLANNING WITH THE FEDERAL AGENCIES, OTHER STATES' AGENCIES, AND LOCAL ORGANIZATIONS. FURTHER RECOMMENDATIONS ARE MADE AS TO THE IDEAL STRUCTURE OF THE AGENCY STAFF. (DEARING-FLA)

/69KU0009798
*69-09798
ASPECTS OF STATE STATUTES II.
MAIR, RAYMOND A.; WALTON, WILLIAM C.; MILLS, DAVID L.
MINNESOTA UNIV., MINNEAPOLIS. WATER RESOURCES RESEARCH CENTER.
ASPECTS OF WATER RESOURCES LAW IN MINNESOTA. JUN 1969. BULLETIN 2, P 51-77, 26 P, 23 REF.

THE POWERS OF THE STATE BOARD OF HEALTH WITH REGARD TO THE ENFORCING OF SPECIFIED WATER LAW STATUTES ARE ENUMERATED. TOPOGRAPHIC AND GEOLOGICAL SURVEYS ARE AUTHORIZED. THE POWERS OF SOIL CONSERVATION DISTRICTS AND THE GAME AND FISH COMMISSION RELATIVE TO WATER LAW ARE LISTED. WATER-BORNE TRANSPORTATION AND FACILITIES THEREFORE ARE PROVIDED FOR AND REGULATED. COUNTY SHERIFFS ARE CHARGED WITH THE RESPONSIBILITY OF ENFORCING WATER SAFETY LAWS. NUMEROUS ADMINISTRATIVE AGENCIES ARE CHARGED WITH THE COORDINATION, PLANNING, AND CARRYING OUT OF VARIED WATER-RELATED PROGRAMS. THE COMPACTS, AGREEMENTS, AND TREATIES RESULTING FROM THE STATE BORDERING ON THE GREAT LAKES ARE ALL NOTED BRIEFLY. THE POLICIES OF THE STATE WITH REGARD TO WATER AND WATER-RELATED PROBLEMS ARE ENUMERATED AS ABSTRACTED FROM POLICY DECLARATIONS AND THE STATE LAWS. PROVISION IS MADE FOR MANDATORY COORDINATION AND COOPERATION OF ALL AGENCIES AND OTHER ORGANIZATIONS DEALING WITH WATER AND RELATED LAND RESOURCES. (KEITH-FLA)

71W0006599
#71-06599
WATER AND RELATED LAND RESOURCES - STATE ADMINISTRATION. LEGISLATIVE PROCESS AND POLICIES IN MINNESOTA. 1970.
*ALTON, WILLIAM C.; MILLS, DAVID L.
MINNESOTA UNIV., MINNEAPOLIS.
AVAILABLE FROM NTIS AS PB-198 307, $3.00 IN PAPER COPY, $0.95 IN MICROFICHE. BULLETIN NO 27, JAN 1971. 344 P, 19 FIG, 14 TAB, OWRR PROJECT A-021-MINN(1).

THE FIRST OF A THREE-PART REPORT ON WATER RESOURCES ADMINISTRATION IN MINNESOTA. THIS BULLETIN CONTAINS INFORMATION ON STATE WATER AND RELATED LAND RESOURCES ADMINISTRATION, LEGISLATIVE PROGRESS, AND POLICIES AS OF 1970. THE BULLETIN INITIALLY SUMMARIZES THE STATE ADMINISTRATIVE STRUCTURE AND GIVES DETAILED DATA ON THE OPERATION OF SUCH STATE AGENCIES AS THE DEPARTMENT OF CONSERVATION, THE POLLUTION CONTROL AGENCY, THE SOIL AND WATER CONSERVATION COMMISSION, THE WATER RESOURCES BOARD, THE STATE BOARD OF HEALTH, AND THE STATE PLANNING AGENCY. IT RECOMMENDS REORGANIZATION OF STATE REGULATORY AGENCIES TO BETTER COORDINATE VARIOUS AGENCY ACTIVITIES. INCLUDED IS A REORGANIZATION PLAN CONSISTING OF A CONSOLIDATION OF MAJOR ADMINISTRATIVE FUNCTIONS WITHIN A SINGLE AGENCY, CREATION OF AN ENVIRONMENTAL COUNCIL AND ENVIRONMENTAL QUALITY COMMISSION, AND A BROADENING OF THE DUTIES OF THE MINNESOTA RESOURCES COMMISSION. THE BULLETIN REVIEWS MEASURES RELATING TO WATER RESOURCES INTRODUCED IN THE LEGISLATURE DURING THE 1969 SESSION. HERE IT DISCUSSES THE MINNESOTA RESOURCES COMMISSION, WHICH SERVES AS A RESEARCH FACILITY FOR THE LEGISLATURE. THE BULLETIN ENDS WITH A DISCUSSION OF STATE WATER POLICIES AND THE NEED FOR A COMPREHENSIVE STATE ENVIRONMENTAL POLICY. THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1970 IS INCLUDED, AS IS A LIST OF PROPOSED STATE LEGISLATIVE ACTIONS. (DOSS-FLORIDA)

71W0001300
#71-01300
INTEGRATING WATER QUALITY MANAGEMENT INTO TOTAL WATER RESOURCES MANAGEMENT IN MINNESOTA.
OLSON, ULRIC P. M.
MINNESOTA UNIV., MINNEAPOLIS. SCHOOL OF PUBLIC HEALTH.
PH D THESIS, UNIV. OF MINNESOTA, JUNE 1970. 376 P, 14 TAB, 53 FIG, 112 REF. OWRR PROJECT A-018-MINN.
EFFLUENT CHARGES, IN-STREAM WATER USE.

THE INTEGRATION OF WATER QUALITY MANAGEMENT INTO TOTAL WATER RESOURCES MANAGEMENT IS GENERALLY APPLICABLE TO HIGHLY DEVELOPED, DENSELY POPULATED AREAS. MANAGEMENT MUST BE CONCERNED NOT ONLY WITH THE QUANTITATIVE ASPECTS BUT SIMULTANEOUSLY WITH THE QUALITATIVE ASPECTS OF WATER RESOURCES IF OPTIMUM USE IS TO RESULT. RESEARCH SHOULD BE UNDERTAKEN TO UPDATE AND STREAMLINE ALL LAWS WITHIN THE STATE PERTAINING TO WATER AND RELATED RESOURCES MANAGEMENT AND ALSO WITH A VIEW TO MAKING LEGAL TERMINOLOGY AND DEFINITIONS MORE CLOSELY REFLECT THE ADVANCES IN SCIENTIFIC KNOWLEDGE; TO PROVIDE THE BASIC INFORMATION NECESSARY FOR THE IMPLEMENTATION OF SYSTEMS OF CHARGES FOR WATER WITHDRAWALS FROM, AND EFFLUENT DISCHARGES TO, BODIES OF WATER AND ALSO FOR IN-STREAM WATER USES; TO BETTER ESTABLISH THE EXTENT OF THE GROUNDWATER RESOURCES, THE HYDRAULIC CHARACTERISTICS OF THESE RESOURCES, AND THE EFFECTS OF URBANIZATION UPON THE USE, CONSERVATION, AND QUALITY OF THESE RESOURCES. THIS IS NECESSARY TO FACILITATE THE RECOMMENDED INTEGRATED MANAGEMENT OF GROUND AND SURFACE WATER RESOURCES; AND TO PROVIDE THE NECESSARY DATA FOR THE DEVELOPMENT OF MATHEMATICAL MODELS OF THE MAJOR STREAMS AND THE USE OF THE RECOMMENDED COMMUNICATIONS-CONTROL NETWORKS FOR WATER QUALITY MANAGEMENT. IN THIS RESPECT THE MISSISSIPPI RIVER BASIN SHOULD RECEIVE TOP PRIORITY. (SEE ALSO #71-01358)

69RU009795
69-09795
STATE JUDICIAL CLASSIFICATIONS OF WATER AND STATE JUDICIAL DETERMINATION OF RIGHTS IN NATURAL SURFACE WATERCOURSES.
MAIR, RAYMOND A.; WALTON, WILLIAM C.; MILLS, DAVID L.
MINNESOTA UNIV., MINNEAPOLIS. WATER RESOURCES RESEARCH CENTER.
ASPECTS OF WATER RESOURCES LAW IN MINNESOTA. JUN 1969. BULLETIN 2. P 4-22. 18 P. 78 REF.

THE STATE JUDICIARY HAS SET UP TWO SYSTEMS OF WATER CLASSIFICATION. THE SYSTEMS USED TO DETERMINE RESPECTIVE PRIVATE RIGHTS DISTINGUISHES BETWEEN WATERS ON THE SURFACE OF THE EARTH AND WATERS UNDER THE SURFACE OF THE EARTH. WATER ON THE SURFACE OF THE EARTH IS DEFINED TO INCLUDE DIFFUSED SURFACE WATERS, NATURAL WATERCOURSES, NATURAL BODIES OF WATER, AND ARTIFICIAL SURFACE WATERCOURSES. WATER UNDER THE SURFACE OF THE EARTH IS DEFINED TO INCLUDE UNDERGROUND WATERS IN DEFINITE STREAMS, UNDERGROUND PERCOLATING WATERS, AND ARTESIAN WATERS. EACH SUBCLASSIFICATION IS DEFINED. THE SYSTEM USED TO RESOLVE PRIVATE-PUBLIC USE CONFLICTS DISTINGUISHES BETWEEN PUBLIC AND PRIVATE WATERS: PRIVATE WATER IS DEFINED AS DIFFUSED SURFACE WATER AND PUBLIC WATER INCLUDES ALL OF THE OTHER FOREGOING SUBCLASSIFICATIONS. BY WAY OF CONTRAST, HYDROLOGIC CLASSIFICATIONS ARE DISCUSSED. THE STATE JUDICIARY HAS ADOPTED PART OF THE APPROPRIATION DOCTRINE AND PART OF THE RIPARIAN DOCTRINE FOR USE IN DETERMINATION OF RIGHTS IN NATURAL SURFACE WATERCOURSES. CASES DEALING WITH THE FOLLOWING ARE ANALYZED IN LIGHT OF THESE TWO DOCTRINES: REASONABLE USE THEORY; USERS OF WATER; PRIORITIES AS TO COMPETING USES; NAVIGABLE WATERS; OWNERSHIP OF WATERCOURSES, BEDS AND OVERLYING WATERS; AND LEGAL DIFFERENCES WITH RESPECT TO STREAMS, LAKES, PONDS, AND WATERCOURSES. (KEITH-FLA)

72RU011439
W72-11439
WATERSHED PLANNING.
MINNESOTA UNIV., MINNEAPOLIS. WATER RESOURCES RESEARCH CENTER.
AVAILABLE FROM THE NATIONAL TECHNICAL INFORMATION SERVICE AS PB-210 914, $3.00 IN PAPER COPY, $0.95 IN MICROFICHE. PAPERS PRESENTED AT SEMINAR ON WATERSHED PLANNING SPONSORED BY THE METROPOLITAN COUNCIL AND THE MINNESOTA ASSOCIATION OF WATERSHED DISTRICTS, FEBRUARY 15, 1972, BLOOMINGTON, MINNESOTA. MINNESOTA WATER RESOURCES RESEARCH CENTER, BULLETIN 50, APRIL 1972. 63 P, OWRR A-999-MINN(24).
*METROPOLITAN COUNCIL, ADVOCACY POSITIONS, JOINT POWER AGREEMENTS, DEVELOPMENT GUIDE.

THE OBJECTIVE OF THE SEMINAR ON WATERSHED PLANNING WAS TO GATHER AREA LEADERS REPRESENTING WATERSHED DISTRICTS, MUNICIPAL, COUNTY AND STATE GOVERNMENT, AND PRIVATE GROUPS IN AN EFFORT TO STIMULATE FURTHER COORDINATED WATER RESOURCES PLANNING IN MINNESOTA. THE FOLLOWING TOPICS WERE DISCUSSED: METROPOLITAN COUNCIL, WATERSHED DISTRICT, AND MUNICIPAL WATER RESOURCES PLANNING RELATIONSHIPS; IMPORTANCE OF OPEN SPACE TO WATERSHED DISTRICT PLANNING; WATERSHED PLANNING IN MINNESOTA; DEPARTMENT OF NATURAL RESOURCES RELATIONSHIP TO WATERSHED DISTRICTS; SOIL AND WATER CONSERVATION RELATIONSHIPS TO WATERSHED DISTRICTS; AND REGIONAL PLANNING AND WATERSHED RESOURCES. IN PARTICULAR, THE SEMINAR WAS CONCERNED WITH THE METROPOLITAN DEVELOPMENT GUIDE AND THE OVERALL PLANS OF WATERSHED DISTRICTS. (WALTON-MINNESOTA)

78WUU09083
#78-09883
MCLUEN V. MCCARVEL (RIGHTS OF LANDOWNER SEEKING TO COMPEL ADJOINING PROPERTY OWNER TO CEASE OBSTRUCTION OF NATURAL FLOW OF DRAINAGE)
263 N.W. 2D 64-66 (MINN. 1978).

PLAINTIFFS, FARM OWNERS, BROUGHT AN ACTION AGAINST ADJOINING LANDOWNERS CLAIMING THAT THE DEFENDANTS HAD WRONGFULLY OBSTRUCTED DRAINAGE OF SURFACE WATER FROM PLAINTIFF'S FARM. PLAINTIFF SOUGHT AN ORDER REQUIRING THE DEFENDANTS TO REESTABLISH DRAINAGE. A 100 YEAR OLD TOWN ROAD RAN ALONG THE EAST LINE OF PLAINTIFFS' PROPERTY. SURFACE WATERS DRAINED FROM THE PROPERTY INTO A DITCH ALONG THE ROAD WHICH RAN ALONG DEFENDANTS' LAND. CONSTRUCTION OF A INTERSTATE HIGHWAY DEAD-ENDED THE TOWN ROAD AND PROCEEDINGS WERE BEGUN TO VACATE THE ROAD. A TOWN BOARD ORDER VACATING THE ROAD DID NOT REQUIRE PRESERVATION OF THE DITCHES ALONG THE ROAD. AFTER ISSUANCE OF THE ORDER, DEFENDANTS FILLED THE DITCHES AND LEVELED THE ROAD. PLAINTIFFS CONTENDED THEY HAD ACQUIRED AN EASEMENT BY PRESCRIPTION OVER DEFENDANTS' PROPERTY THAT CONTAINED THE DITCH. PLAINTIFFS ALSO CONTENDED THAT DEFENDANTS' ACTION CONSTITUTED AN UNREASONABLE INTERFERENCE WITH THE FLOW OF SURFACE WATER FROM THE LAND. THE SUPREME COURT OF MINNESOTA HELD THAT THE PLAINTIFFS PRESENTED NO EVIDENCE THAT AN EASEMENT HAD BEEN ACQUIRED. THE COURT ALSO HELD THAT THE LOWER COURT'S FINDINGS THAT THE DEFENDANTS' ACTS DID NOT OBSTRUCT THE NATURAL FLOW OF WATER WERE NOT CLEARLY ERRONEOUS AND THEREFORE AFFIRMED THE LOWER COURT'S DECISION IN FAVOR OF DEFENDANTS. (CHARLES-FLORIDA)

77WUU08993
#77-08993
IN RE CITY OF WHITE BEAR LAKE (STANDARD FOR GRANTING OF PERMITS UNDER THE MINNESOTA WATER MANAGEMENT LAW).
247 NW2D 901-07 (MINN 1976).
EVIDENCE.

THE COMMISSIONER OF NATURAL RESOURCES APPEALED FROM AN ORDER AND JUDGMENT OF THE RAMSEY COUNTY DISTRICT COURT REVERSING THE COMMISSIONER'S ORDER DENYING RESPONDENT CITY'S APPLICATION FOR A PERMIT TO ENCROACH UPON THE BAY OF A LAKE TO CONSTRUCT A ROADWAY. THE DISTRICT COURT FOUND THAT A 1973 AMENDMENT TO THE MINNESOTA WATER MANAGEMENT LAW, STATING THAT IN ALL PERMIT APPLICATIONS THE APPLICANT HAS THE BURDEN OF PROVING THAT THE PROPOSED PROJECT IS REASONABLE, PRACTICAL AND WILL ADEQUATELY PROTECT THE PUBLIC SAFETY, CREATED A HIGHER STANDARD FOR GRANTING OF PERMITS. THE SUPREME COURT DETERMINED THAT THE AMENDMENT DID NOT CREATE A HIGHER BURDEN BECAUSE THE AMENDMENT WAS ONLY A RESTATEMENT OF A WELL-ESTABLISHED RULE OF ADMINISTRATIVE LAW. THE ONLY OTHER ISSUE IN THE CASE WAS WHETHER THERE WAS SUFFICIENT EVIDENCE BEFORE THE COMMISSIONER TO SUPPORT A DENIAL OF THE PERMIT. THE SUPREME COURT FOUND THAT WHERE THERE WAS SUBSTANTIAL EVIDENCE BEFORE THE COMMISSIONER THAT POLLUTION, IMPAIRMENT, OR DESTRUCTION OF NATURAL RESOURCES WOULD OCCUR AS A RESULT OF THE GRANTING OF THE PERMIT, AND FEASIBLE ALTERNATIVES WERE AVAILABLE, THE COMMISSIONER'S DENIAL OF THE PERMIT WAS JUSTIFIED. (MILHURN-FLORIDA)

77MU005063
•77-05063
LUNDSIDE V. CROW WING COUNTY (COMMERCIAL CAMPGROUNDS DETRIMENTAL TO SMALL LAKES).
222 (NSCW 482-91 (MINN 1976).
CROW WING COUNTY(MINN). •NORAY LAKE(MINN).

PLAINTIFF-RIPARIAN LANDOWNER HAD DEVELOPED HIS LAND ALONG A LAKE TO BE USED AS A COMMERCIAL CAMPGROUND. DEFENDANTS ARE THE COUNTY IN WHICH THE LAKE IS SITUATED, AND OTHER RIPARIAN OWNERS ON THE LAKE WHO CLAIM THE CAMPGOUND WILL HAVE SEVERE DETRIMENTAL EFFECTS. THE ZONING COMMISSION DENIED A CAMPGROUND OPERATING PERMIT TO THE PLAINTIFF. PLAINTIFF APPEALED. THE DISTRICT COURT REVERSED THE ZONING COMMISSION'S RULING, AND GRANTED A SUMMARY JUDGMENT, STATING THAT AS LONG AS NO FINDINGS OF FACT WERE ATTACHED TO THE ZONING COMMISSION'S PERMIT REFUSAL ORDER, THE RULING WAS PER SE ARBITRARY AND VOID. THE SUPREME COURT DISAGREED WITH THIS REASONING AND STATED THAT THE DISTRICT COURT SHOULD HAVE CONSIDERED THE REASONS FOR DENIAL WHICH WERE ADVANCED BY THE ZONING COMMISSION. THE COURT POINTED OUT THAT SUCH A CAMPGROUND WOULD INCREASE THE LAKE'S POPULATION TO AN INTOLERABLE LEVEL. IN ADDITION, SANITATION FACILITIES WERE INADEQUATE, AND POLLUTION OF THE LAKE MIGHT RESULT. THE COURT CONCLUDED THAT A SUMMARY JUDGMENT SHOULD NOT HAVE BEEN GRANTED BY THE DISTRICT COURT BECAUSE GENUINE ISSUES OF FACT DID INDEED EXIST. A NEW TRIAL WAS ORDERED. (MOORHOUSE-FLORIDA)

76MU004051
•76-04051
HERSCHMAN V. STATE DEPARTMENT OF NATURAL RESOURCES (ACTION TO DETERMINE COUNTY'S AUTHORITY TO LOWER WATER LEVEL OF A MEANDERED LAKE).
225 NW 2d. P. 841-844 (MINNESOTA 1975). 4P.
MEANDERED LAKES.

APPELLANT AND OTHER LANDOWNERS FILED A PETITION WITH THE COUNTY AUDITOR FOR THE ESTABLISHMENT OF A PUBLIC DITCH TO LOWER THE WATER LEVEL OF A LAKE IN SIBLEY COUNTY. THE BOARD OF COUNTY COMMISSIONERS AUTHORIZED THE ESTABLISHMENT OF A DITCH. THE DEPARTMENT OF NATURAL RESOURCES BROUGHT SUIT TO ENJOIN THE BUILDING OF THE DITCH, CLAIMING THAT A PERMIT WAS NEEDED SINCE THE LAKE WAS MEANDERED AND THUS UNDER STATE CONTROL. THE DISTRICT COURT VACATED THE BOARD OF COMMISSIONERS ORDER. ON APPEAL, APPELLANT CONTENDED LAKE HAD BEEN DRY FOR CONSIDERABLE PERIODS OF TIME, AND THUS NO LONGER A MEANDERED LAKE. THE SUPREME COURT OF MINNESOTA HELD THAT A LAKE DOES NOT LOSE ITS CHARACTER AS A MEANDERED LAKE BY MERE TEMPORARY RECESSION OF ITS WATERS; TO HAVE THAT EFFECT RECESSION MUST BE PERMANENT. SINCE NO PERMIT WAS ISSUED AND NO DETERMINATION MADE BY THE COMMISSIONER OF NATURAL RESOURCES THAT THE LAKE WAS NOT PUBLIC WATERS, THE BOARD OF COUNTY COMMISSIONERS HAD NO JURISDICTION TO ORDER THE LOWERING OF THE LAKE. (HUFFMAN-FLORIDA)

75KU0071S7
W75-07757

NELSON V. BUTZ (ACTION SEEKING INJUNCTION AND DECLARATORY RELIEF RELATING TO CONSTRUCTION OF PROPOSED DAM).
377 F. SUPP. 819 (D. MINN. 1974).
*DAM EFFECTS. *ENVIRONMENTAL IMPACT STATEMENT. DECLARATORY JUDGMENTS. INJUNCTIVE RELIEF. NATIONAL ENVIRONMENTAL POLICY ACT. ENVIRONMENTAL POLICY.

THE PLAINTIFFS, INDIVIDUAL CITIZENS, BROUGHT ACTION SEEKING DECLARATORY AND INJUNCTIVE RELIEF AGAINST THE DEFENDANT FEDERAL AGENCY (DEPT. OF AGRICULTURE) WITH RESPECT TO THE PROPOSED CONSTRUCTION OF A DAM ON THE KNIFE RIVER, IN MINNESOTA. THE PLAINTIFFS CONTENDED THAT THE ENVIRONMENTAL IMPACT STATEMENT PREPARED BY THE DEFENDANT FOR THE PROJECT FAILED TO COMPLY WITH THE NATIONAL ENVIRONMENTAL POLICY ACT AND GUIDELINES PROMULGATED BY THE COUNCIL ON ENVIRONMENTAL QUALITY. THE FEDERAL DISTRICT COURT HELD THAT WHILE EVERY PARTICULAR DETAIL NEED NOT BE DISCUSSED IN THE STATEMENT, WHERE PARTICULARLY UNIQUE ASPECTS OF THE ENVIRONMENT ARE AFFECTED, THE STATEMENT SHOULD NOTE THEM IN SOME DETAIL. THE COURT RULED THAT THE STATEMENT DID NOT ADEQUATELY DISCUSS THE ENVIRONMENTAL EFFECTS OF THE PROJECT ON MATURE TREES, THE INUNDATION OF CERTAIN ISLANDS, THE ARCHEOLOGICAL SITES, THE ALTERNATIVES TO BUILDING THE DAM, AND THE COST-BENEFIT ANALYSES. THE COURT ENJOINED THE DEFENDANT FROM PROCEEDING WITH THE PROJECT UNTIL SUCH TIME AS AN ENVIRONMENTAL STATEMENT WHICH IS IN COMPLIANCE WITH THE NEPA AND THIS DECISION, IS PROPERLY FILED. (DECKERT-FLORIDA)

73KU01924
W73-01924
HALBACK V. MOE (DRAINAGE OF MEANDERED LAKES BY DIVERSION OF WATERSHED SURFACE RUNOFF).
208 N.W.2D 901-905 (MINN. 1972).

APPELLEE PETITIONED FOR CONSTRUCTION OF A COUNTY DITCH WITHIN THE WATERSHED AREA OF BOISE LAKE TO RECLAIM LAND BY DRAINING TWO SLOUGHS. THE DITCH, AS APPROVED BY THE COUNTY, WOULD DIVERT THE RUNOFF OF SURFACE WATERS FROM SOME OF THE WATERSHED ACREAGE OF MEANDERED BOISE LAKE. APPELLANT CONTENDED THAT THE DITCH WOULD HAVE THE SAME EFFECT ON THE LAKE'S WATER LEVEL AS ESTABLISHING A DRAINAGE OUTLET FOR THE LAKE ITSELF, AND THUS THE COUNTY BOARD'S ORDER WAS UNLAWFUL BECAUSE NO DRAINAGE PERMIT HAD BEEN OBTAINED FROM THE COMMISSIONER OF NATURAL RESOURCES AS REQUIRED BY MINNESOTA LAW. THE SUPREME COURT OF MINNESOTA HELD THAT THE DRAINING OF A MEANDERED LAKE, WITHIN THE CONTEMPLATION OF SECTION 105.021, MINNESOTA STATUTES, DOES NOT CONSIST SOLELY OF EMPTYING ALREADY COLLECTED WATER FROM THE LAKE BUT ALSO INCLUDES, UPON PROPER PROOF OF EFFECT ON THE LAKE'S WATER LEVEL, THE DIVERSION OF SURFACE RUNOFF FROM THE WATERSHED AREA OF THE LAKE. THE COURT RULED THAT TRIAL COURT'S CONCLUSION THAT THE PROPOSED DITCH WOULD HAVE NO APPRECIABLE EFFECT ON THE LEVEL OF WATER IN BOISE LAKE WAS NOT CLEARLY ERRONEOUS. THEREFORE, THERE WAS NO REQUIREMENT FOR PERMISSION FROM THE COMMISSION. (ELLIS-FLORIDA)

70KU008U00
w70-08000
OLVENBORG V HYLEN (PROCEEDINGS FOR DRAINAGE SYSTEM TAKEN UNDER INAPPLICABLE STATUTE).
176 NW2D 78-81 (MINN 1970).

DEFENDANT COUNTY PLANNED TO IMPROVE A DRAINAGE AREA BY CONSTRUCTING TWO DITCHES TO DRAIN LANDS PREVIOUSLY DRAINED ONLY BY A NATURAL WATERCOURSE. THE LANDS OF THE PLAINTIFF, WHEN DRAINED ONLY BY THE NATURAL WATERCOURSE WHICH FLOWED INTO AN OLDER DRAINAGE SYSTEM HAD NOT BEEN ASSESSED FOR BENEFITS. PLAINTIFFS CONTENDED THAT THE UPSTREAM EXTENSION OF THE DRAINAGE DITCHES, INTO LANDS NOT PREVIOUSLY ASSESSED FOR BENEFITS FROM CONSTRUCTION OF THE EXISTING DRAINAGE SYSTEM, HAD BEEN TAKEN UNDER PROCEEDINGS PRESCRIBED BY AN INAPPLICABLE STATUTE. THE COURT HELD FOR PLAINTIFFS STATING THAT THE COUNTY HAD PROCEEDED UNDER A STATUTE WHICH DID NOT PERMIT UPSTREAM EXTENSIONS OF SUCH DRAINAGE DITCHES. THE FACT THAT THE LAND TO BE BENEFITED BY THE NEW PROJECT WAS NOT ASSESSED FOR BENEFITS IN THE ORIGINAL PROJECT REQUIRED THAT THE COUNTY FOLLOW PROCEDURES PRESCRIBED BY ANOTHER STATUTE. (HUBENET-FLORI A)

69KU009106
w69-09106
EDMAND V MASSETT (IMPROVEMENT OF STREAM AS DRAINAGE OUTLET).
164 NW 2D 302-306 (MINN 1969).
CONSTITUTIONAL LAW.

PETITIONERS OWNED LAND ABUTTING ON A NATURAL STREAM FORMING THE OUTLET FOR NUMEROUS DRAINAGE DITCHES. PETITIONERS CLAIMED THE STREAM WAS OF INSUFFICIENT CAPACITY TO CARRY THE WATER FROM ALL THE DITCHES AND, AS A RESULT, CAUSED INUNDATION AND EROSION OF THEIR LAND. THEY BROUGHT AN ACTION SEEKING ENLARGEMENT AND DEEPENING OF THE STREAM. AN ENGINEER WAS APPOINTED TO MAKE A STUDY. HE RECOMMENDED TWO ALTERNATIVE PLANS TO IMPROVE THE STREAM. THE TRIAL COURT REJECTED BOTH PLANS, ONE AS BEING INEFFECTIVE AND THE OTHER AS BEING TOO COSTLY. PETITIONER APPEALED ON CONSTITUTIONAL DUE PROCESS GROUNDS, CONTENDING THAT THE FLOODING AND EROSION RESULTED IN A TAKING OF LAND WITHOUT JUST COMPENSATION. THE SUPREME COURT AFFIRMED HOLDING THAT SINCE PETITIONERS COULD HAVE OBJECTED TO THE CONSTRUCTION OF THE DITCHES ON THE GROUNDS OF THE INADEQUACY OF THE OUTLET WHEN THE DRAINAGE SYSTEM WAS BEING ESTABLISHED, THEY COULD NOT LATER CLAIM A CONSTITUTIONAL RIGHT TO THE IMPROVEMENT. (HELWIG-FLA)

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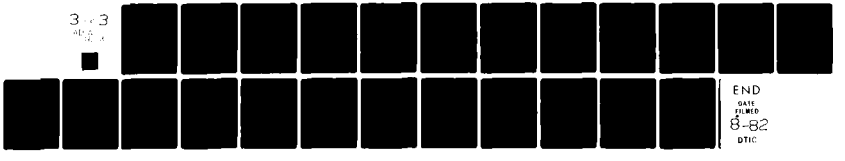

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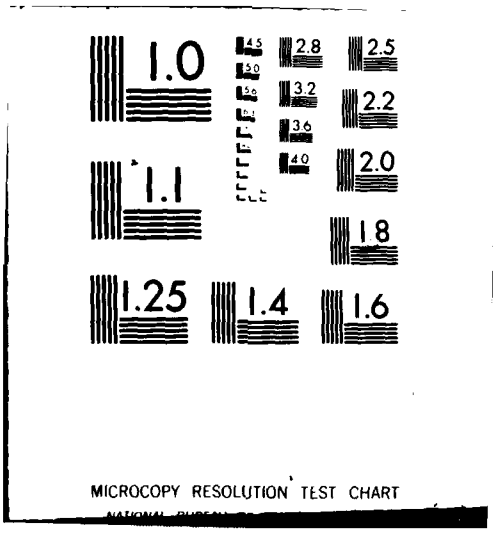
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09KUU08774
#69-08774
NUSTUAL V #AIUN#AN COUNTY (DRAINAGE DISTRICT LIABILITY).
22 N# 2D 461-47) (MINN 1946).
#NEGLIGENCE.

PLAINTIFF BROUGHT THIS SUIT TO COMPEL DEFENDANT TO REMOVE AN INADEQUATE CULVERT OR BRIDGE WHICH WAS PART OF A DRAINAGE PROJECT AND TO REPLACE IT WITH AN ADEQUATE CULVERT OR BRIDGE. PLAINTIFF OWNED LAND LOCATED WITHIN A CERTAIN AREA OF A JUDICIAL DITCH. THE AMOUNT OF $700 WAS AWARDED TO DEFENDANT TO CONSTRUCT A BRIDGE OVER SAID DITCH TO ACCOMMODATE A COUNTY ROAD. TWICE DEFENDANT NEGLIGENTLY CONSTRUCTED THE CULVERT WHICH RESULTED IN THE ACCUMULATION OF MUD AND DIRT WHICH RENDERED THE DITCH INEFFECTIVE. PLAINTIFF AND OTHER LANDOWNERS IN THE AREA WERE SUBSEQUENTLY ASSESSED FOR COSTS RESULTING FROM THE CLEANING OF THE DITCH. PLAINTIFF THEN SOUGHT TO COMPEL DEFENDANT TO REMOVE AND REPLACE THE INADEQUATE CULVERT WITH AN ADEQUATE ONE AND TO PAY THE COSTS OF CLEANING THE DRAINAGE DITCH. THE COURT DENIED THE RELIEF SOUGHT. THE COURT BASED ITS DECISION ON THE FACT THAT THE COUNTY IS AN ARM OF THE STATE AND THUS IMMUNE FROM NEGLIGENCE SUITS. THE COURT INDICATED THAT PLAINTIFF MIGHT HAVE BEEN SUCCESSFUL HAD HE PURSUED RELIEF ON THE THEORY THAT DEFENDANT WAS BENEFITED BY THE DITCH AND CONSEQUENTLY SUBJECTED TO THE DAMAGES AND BENEFITS PROVISIONS IN THE DRAINAGE LAW WHICH DETERMINED THE METHOD FOR ASSESSMENT. (HOLT-FLA)

09KUU04866
#69-04866
LIPPMAN V MUHN (RIGHT TO ESTABLISH PUBLIC DRAINAGE DITCHES).
81 N # 2D 100-109 (MINN 1957).

PURSUANT TO THE PROCEDURE OUTLINED IN THE DRAINAGE CODE, RESPONDENT LIPPMAN FILED A PETITION AND RECEIVED A FINAL ORDER FROM THE DISTRICT COURT FOR ESTABLISHMENT OF LATERAL A AND ITS OUTLET INTO PREVIOUSLY ESTABLISHED JUDICIAL DITCH NO 13. APPELLANT, MUHN, QUESTIONED THE VALIDITY OF THE FINAL ORDER. APPELLANT CLAIMED THAT LATERAL A WOULD DRAIN A WATERSHED AREA DIFFERENT THAN THE AREA SERVED BY JUDICIAL DITCH NO 13. THAT IT WOULD REQUIRE DIVERTING THE NATURAL DRAINAGE SYSTEM PREVIOUSLY DRAINING THE AREA. AND THAT THE ONLY GROUPS TO BE BENEFITED BY ITS ESTABLISHMENT WOULD BE ITS PROPONENTS. HOWEVER, THE COURT UPHELD THE FINAL ORDER, SAYING THAT LATERAL A WAS JUSTIFIED BY THE FACT THAT IT WOULD PROMOTE THE GENERAL HEALTH AND PUBLIC WELFARE AND BE OF PUBLIC BENEFIT. THIS BEING THE PURPOSE BEHIND THE ENACTMENT OF THE DRAINAGE CODE. (HOLT-FLA)

76WU07393
W76-07393
HOLDEN V. LESUEUR COUNTY (REQUIREMENT OF PUBLIC WATER DETERMINATION BY DEPT. OF NAT. RESOURCES FOR ESTABLISHMENT OF DRAIN).
232 NW 2D 805-08 (MINN. 1975). 3 P.

PLAINTIFF LANDOWNERS BROUGHT SUIT TO PREVENT THE ESTABLISHMENT OF A DRAINAGE DITCH BY DEFENDANT COUNTY. THE PROPOSED DITCH WAS TO BE 5 MILES LONG AND WOULD CHANNELIZE A NATURAL WATER COURSE. THE DRAINAGE WOULD DIRECTLY AFFECT A 500 ACRE MARSHLAND ALONG THE MAIN DITCH CHANNEL. THE PLAINTIFFS CONTENDED THAT A DECLINE IN WILDLIFE SPECIES IN THE AREA WOULD RESULT IF THE DITCH WERE CONSTRUCTED. THE PLAINTIFFS ALSO CONTENDED THAT THE DEFENDANT HAD NOT RECEIVED A PERMIT FROM THE DEPARTMENT OF NATURAL RESOURCES AUTHORIZING THE ESTABLISHMENT OF SUCH A DRAINAGE DITCH AND THAT THE DEPARTMENT HAD NOT MADE A DETERMINATION OF WHETHER PUBLIC WATERS WOULD BE INVOLVED. THE MINNESOTA SUPREME COURT HELD THAT STATUTORY REGULATION ALLOWS CONSTRUCTION OF SUCH A DITCH ONLY AFTER A PERMIT HAS BEEN RECEIVED AND A DETERMINATION HAS BEEN MADE THAT NO PUBLIC WATERS ARE INVOLVED. SINCE NEITHER REQUIREMENTS HAD BEEN SATISFIED THE COURT VACATED THE LOWER COURT'S ORDER ESTABLISHING THE DITCH. (WELCH-FLORIDA)

78WU09009
W78-09009
CITY OF NORTH ST. PAUL V. MINNESOTA WATER RESOURCES BOARD (AUTHORITY OF STATE WATER RESOURCES BOARD TO CREATE WATERSHED DISTRICTS)
260 N.W.2D 584-587 (MINN., 1977).

PLAINTIFFS, CITIES OF MINNESOTA, CHALLENGED THE INCLUSION OF A CREEK SUB-WATERSHED WITHIN A NEWLY CREATED WATERSHED ESTABLISHED BY THE MINNESOTA WATER RESOURCES BOARD, DEFENDANT. THE WATERSHED DISTRICT AT ISSUE WAS ESTABLISHED PURSUANT TO STATE STATUTE. A PETITION WAS FILED AND PUBLIC HEARINGS WERE HELD BEFORE THE CREATION OF THE WATERSHED. AT THE PUBLIC HEARING, PLAINTIFFS ARGUED THAT THE CREEK AREA CONSTITUTED A SEPARATE WATERSHED. THAT THE WATERS DID NOT PHYSICALLY MINGLE, AND THAT THE WATER MANAGEMENT PROBLEMS OF THE CREEK WERE DIFFERENT FROM THE REST OF THE DISTRICT. THESE ARGUMENTS WERE REJECTED BY THE BOARD. ON APPEAL, PLAINTIFFS CONTENTED THAT THE RELEVANT STATUTE REQUIRED THE BOARD TO BASE ITS DECISION OF INCLUSION ON SCIENTIFIC EVIDENCE. PLAINTIFFS FURTHER INSISTED THAT THE BOARD'S ORDER WAS NOT SUPPORTED BY SUBSTANTIAL EVIDENCE. THE SUPREME COURT OF MINNESOTA HELD THAT ALTHOUGH THE BOARD WAS OBLIGED TO BASE ITS DECISION ON SCIENTIFIC PRINCIPLES, THE FACTS TO WHICH SUCH PRINCIPLES APPLY NEED NOT BE SCIENTIFIC. THE COURT ALSO FOUND THAT THE BOARD'S DECISION WAS SUPPORTED BY SUBSTANTIAL EVIDENCE. (QUARLES-FLORIDA)

71MU001237
#71-07237
#ATERS V PUTNAM (REVIEW OF ADMINISTRATIVE DECISION AS TO REPRESENTATION ON #ATERSHED DISTRICT BOARD).
183 N# 2D 545-551 (MINN 1971).

PLAINTIFF LANDU#NERS SOUGHT #RITS OF CERTIORARI AND MANDAMUS IN ORTAINING REVIEW OF DEFENDANT WATER RESOURCES BOARD'S REFUSAL TO REOPEN PROCEEDINGS ESTABLISHING A #ATERSHED DISTRICT. PLAINTIFF CONTENDED THAT APPEAL BY CERTIORARI #AS NECESSARY. AS THERE #AS NO REGULAR APPEAL PROCEDURE FROM THE #ATER RESOURCES BOARD'S DECISION. AND THAT THE BOARD SHOULD BE FORCED TO REAPPORTION THE BOARD OF MANAGERS OF A MULTI-COUNTY #ATERSHED DISTRICT ACCORDING TO THE #ATER CONSERVATION NEFDS OF THE AREA. DEFENDANT CONTENDED THAT PLAINTIFFS HAD NORMAL APPELLATE PROCEDURES OPEN TO THEM AND THAT THE #ATER RESOURCES BOARD. IN EXERCISING ITS DISCRETION. HAD NO OBLIGATION TO INSURE EQUAL REPRESENTATION ON THE BOARD OF MANAGERS. IN AFFIRMING THE QUASHING OF THE #RITS BY THE LO#ER COURT. THE SUPREME COURT OF MINNESOTA NOTED THAT PLAINTIFFS HAD NORMAL APPELLATE PROCEDURES FOR JUDICIAL REVIEW #HICH IT FAILED TO UTILIZE IN TIMELY FASHION. IN EXERCISING ITS DISCRETION. THE #ATER RESOURCES BOARD HAD NO CONSTITUTIONAL OBLIGATION TO INSURE EQUAL COUNTY REPRESENTATION ON THE BOARD. (SMILJANICH-FLORIDA)

70MU000971
#70-00971
#ESIMAL V SCHMALZ (UNAUTHORIZED USE OF DRAINAGE SYSTEM).
169 N#2D 401-403 (MINN 1969).

DEFENDANT LANDU#NER DRAINED PART OF HIS TRACT INTO A JUDICIAL DITCH SYSTEM SERVING ANOTHER PART OF HIS TRACT AND PLAINTIFF'S TRACT. THE LAND DRAINED #AS NOT #ITHIN THE #ATERSHED SERVED BY THE SYSTEM AND THEREFORE #AS NOT ASSESSED FOR BENEFITS. DEFENDANT CUT ACROSS THE #ATERSHED LINE #ITH A TILE DRAIN TO CONNECT #ITH AN EXISTING OUTLET IN A PART OF HIS LAND #ITHIN THE #ATERSHED. DUE TO THE INCREASED PRESSURE AND VOLUME OF #ATER IN THE EXTENSION SERVING PLAINTIFF'S LAND. A PORTION OF HIS TRACT #AS FLOODED AFTER A HEAVY RAINSTORM CAUSING FLOOD DAMAGE TO HIS CROPS. PLAINTIFF #AS GRANTED A PERMANENT INJUNCTION AND DAMAGES. THE APPLICABLE STATUTE REQUIRED A DITCH SYSTEM BE USED ONLY #HEN THE LAND #AS ASSESSED FOR BENEFITS IN THE ORIGINAL JUDICIAL PROCEEDINGS #HICH ESTABLISHED THE DITCH OR #HEN EXPRESS AUTHORITY #AS SECURED FROM THE PROPER COURT OR AGENCY. THIS PORTION OF DEFENDANT'S TRACT #AS NOT #ITHIN THE #ATERSHED. AND DRAINAGE OF THE LAND #AS NOT AUTHORIZED UNDER THE STATUTE. (DOUPENLEY-FLORIDA)

# APPENDIX C
# METHODOLOGICAL REVIEW

## C.1 Establishing the Context of the Institutional Analysis

The Corps of Engineers contracted for the conduct of this institutional analysis as a part of a more inclusive study of the Redwood, Cottonwood, Yellow Medicine, Lac Qui Parle and Yellow Bank Rivers' Subbasins of the Upper Minnesota River Basin. In order that the institutional analysis provide the maximum benefit to the Corps in the overall study, it was important to firmly establish the specific institutional considerations that are most important now. The correct context and importance of the institutional analysis was also important knowledge used in the design of the interview/survey document used in developing the primary data.

The consultant and representatives of the Corps worked jointly to develop an understanding of the context and ultimate purpose of the institutional analysis.

## C.2 Development of Institutional Inventory

The analysis of relevant institutions is necessarily dependent on two data gathering efforts that must precede: (1) the identification of relevant institutions, and (2) the development of certain types of information about those institutions. This section deals with the two data-gathering efforts and is divided into two subsections according to the type of "institutions" under consideration. There are organizational institutions such as governmental agencies, civic groups and business associations, and there are non-organizational institutions such as laws, regulations and ordinances. The activities involved in gathering data on these two types of institutions have overlaps, but are conceptually separable.

In the preliminary identification of institutions included in the inventory the researchers contacted "regional" information sources such as:

- Southern Minnesota River Basin Board
- Southwestern State University - Office of the President
- Minnesota Soil & Water Conservation Board
- Minnesota Department of Natural Resources - Division of Waters
- Minnesota Area Community Resource Development Agent, Agricultural Extension Service, Marshall, MN
- Minnesota Water Resources Research Center.

From the information obtained from these sources and others, a list of relevant organizational institutions and of important non-organizational institutions was developed. This list of institutions was reviewed for completeness with Corps representatives and with other knowledgeable individuals.

In order to develop information about organizational institutions, the researchers designed an "interview schedule form", a guide to aid in the conduct of face-to-face interviews with representatives of each organizational institution. The interview schedule form was reviewed with Corps representatives and appropriate revisions were made. After the form was finalized, interview appointments were established with organizational institutions. Thirty-six (36) formal face-to-face interviews were conducted with representatives from organizational institutions. The results of the interviews were compiled. These results were then used in the composition of a descriptive "inventory of organizations."

Information about non-organizational institutions was gathered in a much different manner. Existing inventories of water resources and related land use legislation were identified,

obtained, and reviewed. Information on other relevant non-organizational institutions not included in existing inventories was also obtained mostly through discussions with people knowledgeable with the study area. Appropriate explanations of the major impacts of laws, regulations and ordinances were developed using this information. A "compendium of water resources and related land use legislation" was developed as an appendix to the report.

## C.3 Functional Analysis of Existing Institutions

Several tasks were involved in the identification of the functions related to water resources planning and management relevant to the context of the overall Upper Minnesota River Subbasin Study. First, a normative list of functions necessary for effective water and related land use management was prepared. This list was reviewed with the Corps representative and appropriate revisions were mutually agreed upon. This list was used in the face-to-face interviews to assist the interviewees in identifying the water resource related functions performed by their organizations. Once the water resource related functions performed by all relevant institutions were identified, the functional responsibilities of all major organizational institutions was displayed on an institutional analysis matrix.

## C.4 Analysis of Perceived Water Resources Issues

The face-to-face interviews were used as the primary source of information about the water resources issues generally perceived in the study area. Interviewees were asked to identify the major water resource issues, their causes, and the possible solutions. This information was utilized in the overall analysis of institutions in the study area and as the basis for a section in the final report.

## C.5 Institutional Network Analysis

All information developed by the researchers (enumerated above) was utilized in a network analysis to evaluate the capabilities of the existing institutional system. In this analysis effort special attention was devoted to the following topics:

- Technical capabilities of the overall system
- Overlap and/or duplication in functional responsibilities of organizations
- Weaknesses in the management system
- Coordination and communication among institutions
- Reporting and review responsibilities
- Coordination with the Corps and SCS

These topics were developed in various sections of the final report.

Appropriate appendices and support documentation was prepared for submission with the final report. The final report was submitted to the Corps of Engineers for review and suggested revisions, after which, the institutional analysis report was finalized.

## C.6 Institutional Analysis - Technical Definition

As a supplement to the discussion of the nature of institutional analysis that appears in Sec. 2.4 of this report, the following more technical definition is provided:

> Institutional Analysis: A detailed examination of both organizational institutions which range from institutionalized human associations (e.g., governmental agencies) to any instances of collective behavior (e.g., informal voluntary associations) and non-organizational institutions which can include the more formal examples such as laws, regulations

and ordinances as well as the more informal examples of customs and traditions. The analysis is for the purpose of evaluating the effectiveness and/or efficiency of an institution, or a set of instituions with regard to their functional relationship to a specifically identified topic of concern.[1] The type of evaluation serves as a criterion for the selection of the analysis techniques to be employed. The topic of concern also contributes to the selection of analysis techniques and serves as a criterion for the identification of relevant institutions to be included in the analysis.[2]

An institutional analysis may not be concerned with all facets of the operation of each of the several (or many) institutions under consideration; rather it concerns certain operations, facets or functions of the institutions. The particular facets of the institutions which are included in an institutional analysis are determined by the specific topic or subject matter under consideration.[3]

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[1]The topic of concern in this particular instance of institutional analysis is water resources planning and management in the Upper Minnesota River Basin with particular attention applied to flood problems.

[2]Saville, pg. 118.

[3]Ibid, pg. 121.

## APPENDIX D

## SURVEY INSTRUMENT

Among the first stages of the institutional analysis, primary data was collected on the characteristics of various organizations. Certain types of subjective information such as perceptions, preferences, and behavioral dispositions were obtained only through direct interviewing of key individuals involved in water resource management. The survey instrument used to elicit the necessary data was reviewed several times by the Contracting Officer to ensure that each question was constructed with "closed answer categories" so as few questions as possible would allow a response which was "open ended".

The interviews were conducted during the first week of May 1980 with the survey instrument which follows this page. Each interview was prefaced with an explanation of the "Privacy Act" which was provided by the Contracting Officer. The contents of the act were stated as follows:

> Individual responses to this survey will be kept confidential--only aggregated responses will be available as public information...responses to this questionnaire are voluntary, no penalty will be made for refusal to answer any or all questions...

Throughout the interview, a map was used as explanation of the study area. In addition to the questionnaire, the interviewees were asked to complete a matrix of the functions of their organization. Results of the questionnaires were provided to the Corps as part of the written Progress Report.

## GOVERNMENT AGENCIES

NAME OF AGENCY SCS-staff to Grant County Soil & Water Conservation Dist. PHONE # (605) 432-5672 DATE May 7, 1980

PERSON INTERVIEWED PRINCIPAL LOCATION(S)

MAJOR OBJECTIVES AND PURPOSE
Preservation of soil and water by working with individual land owners - communication of improved practices

JURISDICTION
☐ U.S.A. ☐ Multistate ☐ Statewide ☐ Regional
☐ >Study Area ☐ =Study area ☐ >One Wastershed ☒ ≤One Watershed ☒ Local
CIRCLE APPLICABLE SUBAREAS: (1) 2 3 4 5 6 7 8 9 (see map)

SIZE: 3 Employees
(Total) -- Annual Budget

FUNDING SOURCES (with approximate percentage):
☐ Taxing ( %) ☐ Borrowing ( %)
☐ User Charges ( %) ☐ Special Assessment ( %)
☐ Fees ( %) ☒ Appropriation ( %)
☐ Grants ( %) ☐ Other; specify ( %)

STAFF COMPOSITION/EXPERTISE:
1 Secretarial/Clerical
Administrative
Financial
Planning
Engineering
2 Technical/Scientific
Other; specify

NOTES RE SPECIAL STAFF CAPABILITIES:

ENABLING LEGISLATION AND/OR MOST RELEVANT STATUTORY AUTHORITY:
--

REPORTING AND/OR COORDINATION RESPONSIBILITIES:

| Subject Matter Involved | Type of Responsibility | Organizations Involved |
|---|---|---|
| New Policies | Coordination | USDA State level |
| | | |
| | | |
| | | |

IDENTIFY THE FORMAL &/OR INFORMAL GROUP(S) WITH THE GREATEST INFLUENCE ON:
1. Local issues County Commissioners, Ext. Agents, Conservation Officers, individuals
2. Regional issues EDCS, SCS, ASCS, watershed board

IDENTIFY THE SOCIAL GROUP(S) WITH THE GREATEST ACTIVE MEMBERSHIP IN THE STUDY AREA:
1. Locally GArden Clubs, Conservation Clubs
2. Regionally

ATTITUDE TOWARD REGIONAL VENTURES:

ATTITUDE OF ORGANIZATION:
☐ Generally oppose ☐ Depends on issue ☒ Generally favor
☐ Depends on other

ATTITUDE OF _____:
☐ Generally oppose ☒ Depends on issue ☐ Generally favor
☒ Depends on other economic benefits and costs

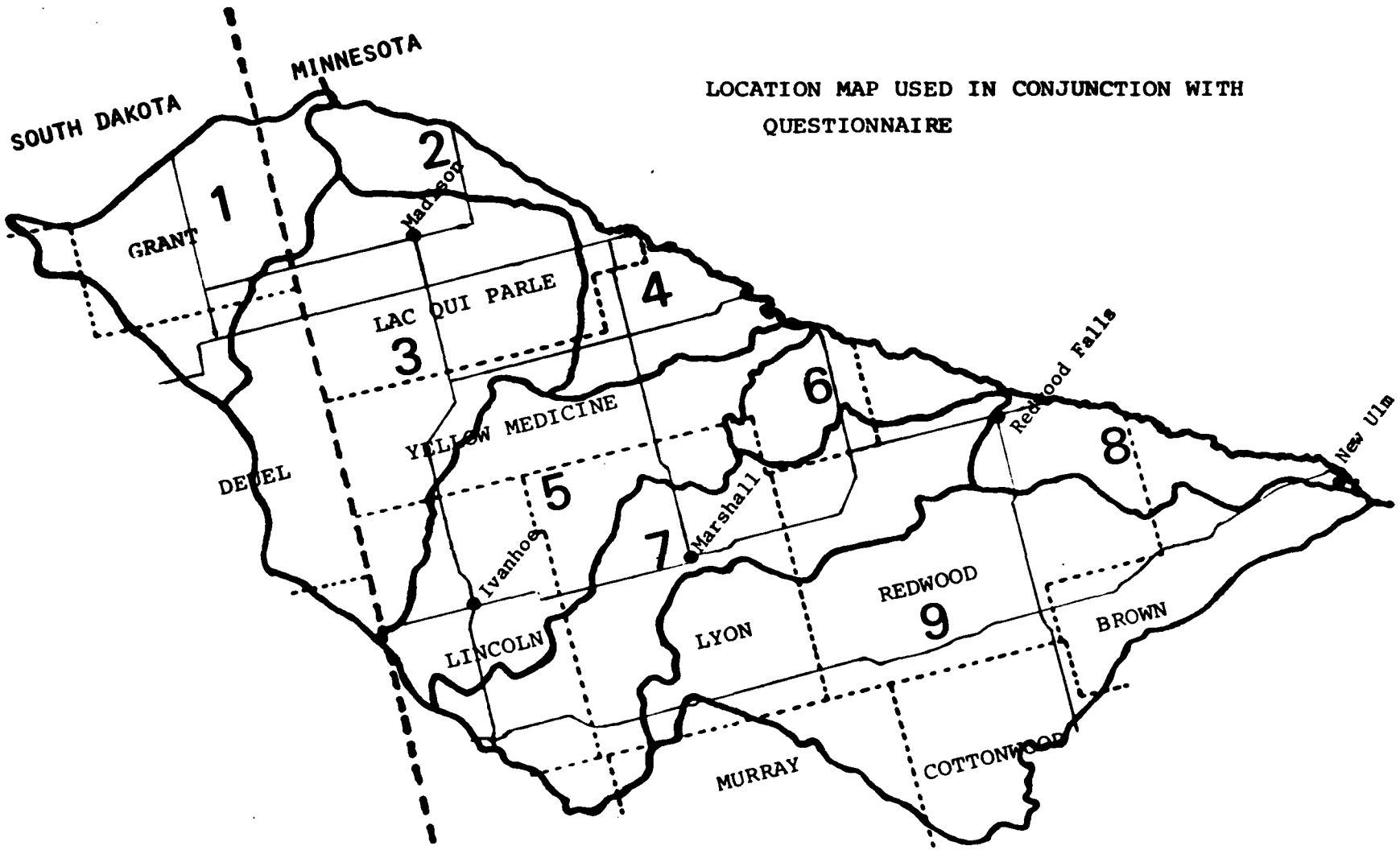
IDENTIFY ORGANIZATIONS WITH WHICH YOUR ORGANIZATION HAS A SIGNIFICANT AMOUNT OF:
Cooperation: ASCS, Farmer's Home Administration, Extension Service
Conflict:

IS or WILL Your organization be participating directly in the "639" flood control planning study for the Upper Minnesota River Basin being conducted by the Corps of Engineers and SCS? ☐ Yes ☐ No
☐ Indirectly through (specify organization)

IDENTIFICATION OF WATER RESOURCE AND RELATED LAND USE ISSUES - FROM ORGANIZATION PERSPECTIVE:

| Issues: | Causes: | Resolution: | Role of Organization |
|---|---|---|---|
| Irrigation and water supply | - | - | - |
| Recreation | - | - | - |

LOCATION MAP USED IN CONJUNCTION WITH QUESTIONNAIRE



APPENDIX E Contract No. DACW37-80-C-0026

# SCOPE OF WORK FOR AN INSTITUTIONAL ANALYSIS OF THE UPPER MINNESOTA RIVER SUBBASIN, MINNESOTA AND SOUTH DAKOTA

## 1. INTRODUCTION

1.01 The Contractor will conduct an institutional analysis, as defined in this scope of work, for a study of improvements needed for flood protection or the conservation, development, utilization and disposal of water in the Redwood, Cottonwood, Yellow Medicine, Lac Qui Parle and Yellow Bank Rivers' subbasins of the Minnesota River Basin. The St. Paul District of the U.S. Army Corps of Engineers and the Minnesota office of the Soil Conservation Service have entered into a joint study of water problems in the study area under the authority of P.L. 87-639. The joint study was authorized by a Congressional resolution of December 1975 following a request by the Governor of Minnesota to conduct an implementation study for the area. The objectives of this study include: 1) further investigation and clarification of alternatives for orderly development of water and related land resources;[1] 2) development of solutions to area flooding problems, including crossover flooding between adjoining watersheds; 3) investigations of solutions to drainage, erosion and sedimentation, and water quality problems. In addition, the study will consider the beneficial and adverse impacts of alternatives on recreation, fish and wildlife resources, and other environmental, cultural, and social features peculiar to the basin. The accomplishment of an institutional analysis is stipulated in planning regulations and guidance as a necessary and required step in the planning study process.

[1] Initial investigations and alternatives can be found in the Minnesota River Basin Rpt, Southern MN River Basin Commission, 1977

1.02 The planning regulations and guidance requiring an institutional analysis make explicit the operations required of this analytical step in the planning process (see: ER 1105-2-22, Planning: Urban Studies Program, 21 Aug. 1978, and ER 1105-2-200, Planning Process: Multiobjective Planning Framework, 13 July 1978). The analysis performed by the Contractor to meet the requirements of these regulations, will consist of: 1) list of organizations with responsibility or involvement in water resources and related land use planning; 2) description and analysis of (a) legal authorities, (b) policies, and (c) programs; 3) analysis of existing impediments and constraints set by organizations and their political and legal arrangements and customs as relevant to the study objectives and considerations listed in 1.01.

1.03 The purposes of the institutional analysis are represented in the functions it provides to the selection and design of planning alternatives capable of implementation. The implementability of an alternative is evaluated according to the following criteria: 1) capability of existing institutions to meet plan requirements; 2) acceptability of potential changes in local arrangements and procedures involving the functions of existing organizations and their inter-organizational relations; 3) financial, legal and technological feasibility; and 4) political and social acceptability.

1.04 The research approach of the Contractor will be empirical and quantitative to the fullest extent consistent with the general research design suggested by this scope of work. Deviations from this requirements may be granted for specific areas as a part of the contract negotiation process.

No assertions of fact will be made without supporting evidence based on primary observation or documented secondary data. Where speculation about possible states or futures is necessary, probabilities will be explicitly estimated. Qualitative information and value issues should be identified then rigorously and precisely treated to the maximum extent permitted by the subject matter. An unstructured style of investigation, analysis or presentation, unsupported by points of evidence, is unacceptable.

1.05 The extent and character of the work to be accomplished will be subject to the general supervision, direction, control and approval of the Contracting Officer or his/her designee.

2. General Performance Specifications

2.01 Interview Technique for Primary Data. The collection of primary data on the characteristics of organizations, groups, and association and on their collective perceptions, preferences, and behavioral dispositions will be done by means of direct interviewing. Those interviewed will be the key officers, leaders, or representatives of highest accessible rank. The interviews will be conducted with a highly structured printed interview schedule form.(1) To the maximum extent possible, each item will be constructed with closed answer categories so that only those items requiring probes for information to clarify an initial answer will be "open-ended." The answer categories will be at the highest level of measurement made possible by the question, to facilitate a precise interpretation of the data.(2) In no case, excepting refusal of face-to-face meeting, or consent of the Contracting Officer, will the interview form be administered by mail. In cases of refusal, reason for the refusal will be documented.

(1) Interview forms will contain a standard "Privacy Act" statement, to be provided by the Contracting Officer.

(2) Interview forms will be submitted to the Contracting Officer for review and approval prior to initiation of actual field interviewing.

2.02 Validation by Secondary Data. The Contractor will make a best effort to check and validate primary interview data by consulting published sources for factual and/or logical congruence. Examples of such sources are government documents, reference works and newspaper archives. When secondary data are not available, the use of expert informants or consultants may be appropriate. In such cases, informants will be named, their expertise documented, organizational ties specified, and any vested interests indicated.

2.03 Regional Information Source Contacts. Upon initiation of work for this contract, organizations having comprehensive scope of knowledge and/or responsibility concerning water and other natural resources in the study area will be contacted. These organizations include: 1) the Southern Minnesota River Basin Board; 2) Southwest State University, Office of the President; 3) Minnesota Soil Water Conservation Board. Contact, at a minimum, will consist of 1) informing the officers of these organizations of the study intended by the Contractor, and 2) requesting lists of relevant organizations and inventories of law which may be a systematically organized part of the information base of these two organizations. The Contractor will also explicitly ask the continuing consultation, advice, and cooperation of these three organizations in the conduct of this study. The Water Management Work Group of the Minnesota Water Planning Board will also be contacted prior to study design, and throughout the course of the study, as necessary. Care will be taken to avoid duplication of the Institutional Analysis investigations conducted by this organization as a prt of the Minnesota State Water Plan development studies.

2.04 Data Analysis. The presentation of information will be quantitative to the full extent made possible by having earlier met the specifications of this scope of work on the topics of measurement and interview item construction. The objective of this study is to provide information of a

descriptive kind which will be a complete and reliable basis for planning decisions. The Contractor will also develop an analysis and interpret any apparent causal relationships perceived in the data which might, in the Contractor's professional judgement, have bearing on decision-making.

2.05 Data Presentation Format. Data will be presented in numerical and/or graphic display formats accompanied by rigorously interpretive text meeting the standards of professional journals. Examples applicable to the content of this study are: the Administrative Science Quarterly, the American Sociological Review, and the Journal of Applied Psychology.

## 3. Report Requirements

3.01 Structure of the Report. The study report will consist of: an abstract table of contents, an introduction, six substantive sections, summary and conclusions section, a bibliography, and appendices. The six substantive sections will be: 1) Descriptive Inventory of Organizations, 2) Review of Water Resources and Related Land Use Legislation, 3) Organizational Responsibility and Objectives, 4) Organizational Perceptions, 5) Assessments of Other Organizations, and 6) Organizational Interrelations. The following sections contain a rough lay-out of the substantive content and framework of the major tasks.

3.02 The Abstract. The abstract will be a synopsis of the report stating the scope of work and the general conclusions which have emerged from the study.

3.03 The Table of Contents. The table of contents will present all major sections and subsections in outline format with both sections and page numbers appropriate to the introduction, report body, and appendices.

3.04 The Introduction. The introduction will include, but need not be limited to the following: 1) definition of institutional analysis, 2) the purpose and authority for the study, 3) a brief description of the study area encompassed by the Upper Minnesota River Basin, 4) a short characterization of the content and purpose of each major substantive section clarifying the rationale for its contribution to the general purposes of the study, 5) a statement of the research style and practices of the principal investigator and any pertinent assumptions unique to this particular investigation, and 6) a statement of the general methodological orientation spanning the work of all sections. A statement will direct readers to find the explanation of specific applied methods in each substantive section.

3.05 Descriptive Inventory of Organizations. An organizational inventory incorporating a number of descriptors will be compiled. This descriptive inventory will include all organizations, groups, and associations having jurisdiction, interest, or other potential for involvement in water resources planning within the geographic boundary of the study area. Governmental organizations below the county level should be addressed by type, rather than by individual units, where functions are essentially equivalent.
The definition of the term "organization", for the purposes of this study, is to be more inclusive than the restrictive one denoted by the modifier "formal" as it is understood by contemporary practitioners of organizational systems and behavior research.
Criteria of definition for the more restricted category of "formal organizations" would include instances of institutionalized human association having one or more of the following attributes: 1) collective name, 2) legal existence, 3) written charter, 4) list of membership, 5) set of officers,

6) an administrative support system, 7) physical equipment, 8) occasions of assembly, or 9) a set of explicit goals. In addition to these instances of clearly structured institutionalized behavior the investigation mandated by this scope of work will encompass any instance of collective behavior which meets the following minimal criteria. A "group" need only be a group in the strict sociological sense of having conjointly: 1) a shared goal, interest or perspective; 2) mutual awareness among members, and 3) active association in communication or cooperative behavior, whether or not actually meeting. Accordingly, the inventory will include informal voluntary associations and interest groups, as well as formalized organizations.

Suggested organizational categories might include but not be limited to the following:

- Governmental agencies
- Civic groups
- Environmental groups
- Recreational associations
- Businesses
- Professional societies
- Occupational associations
- Issue groups
- Co-op organizations
- Service organizations

Characteristics of local and regional organizations which will benefit planning include the following:

- Staff expertise (incl. consultants)
- Extra-organizational affiliations of key staff members
- Scope of jurisdiction
- Brief description of major function
- Project specific or permanent
- Size (1) by membership, (2) by budget (gathered through document searches
- Funding (source)
- Organizational chart and officers (displayed in appendix)
- Voluntary or paid relationship of members to the organization (if voluntary, is there a paid permanent staff? How many?) (What are primary paid occupations of voluntary staff members?)
- Physical location
- Published annual reports, if available (displayed in appendix)

It is suggested that this first section for organizational inventory of the study area consist primarily of crosstabular display accompanied by brief commentary on the general institutional/organizational characteristics of the study area.

The following are the suggested minimum of organizations to be interviewed. The maximum number of organizations to be interviewed should not exceed approximately thirty-five. The final set of organizations to be interviewed will be subject to the prior approval of the Contracting Officer.

3.06 Review of Water Resources and Related Land Use Legislation. An inventory and analysis of water resources and related land use legislation pertaining to the study area will be developed. This section should be considered the major focus of the study. Laws, regulations and ordinances reviewed will include all those having jurisdiction in the study area and originating from municipal, county, State, and Federal authority. This discussions of Federal authority will also consist of an explanation of the extent of study jurisdiction authorized under P.L. 87-639. These enactments will be displayed by their content in the categories indicated in the headings of the table given in Figure 3.1 of the Institutional Analysis Appendix, Binghamton Wastewater Management Study, Corps of Engineers, June 1976.

An appendix to the study report will consist of the official summary statements of the law. The body of the report will contain annotative explanations of laws, cited by title. These explanations will include summary, originating authority, enforcement provisions, and any implications for design considerations of the study. The emphasis and detail of this task will be directed toward State and local statutes.

Advice on sources for compiling this inventory of laws, regulations, and ordinances will be sought first from the Minnesota Water Planning Board, the Southern Minnesota River Basin Board, and the South Dakota

Care will be taken to devise criteria for quickly identifying only that subset of Federal and State enactments which directly apply to the study area and its specific water and other natural resource problems as addressed in the context of this study.

3.07 Organizational Responsibilities and Objectives. This section of the report should contain a description of how organizations interpret the legal obligations profiled in the immediately preceding section. Their customary functions, with special focus on how these functions are translated as goals and policy orientations, should also be described.

At a minimum, this section should include measurement and analysis of the organizational attributes and behavioral dispositions indicated by the outline of variables shown below.

A. Perceived water resources responsibilities
   1. Funding obligations
   2. Regulatory functions
   3. Implementation support
   4. Maintenance
B. Policy orientations

From these measurements of organizational perceptions, responsibilities, and preferences the Contractor will be responsible for presenting conditions which will set the contributions and constraints of participating organizations in the area to the planning study. The tasks of this section will be accomplished by the direct administration of a structured interview form to key officers of organizations. In all possible instances interview data will be validated by documents and other secondary sources.

3.08 Organizational Perceptions. This section of the report will describe perceived opportunities and costs involved in area problems and potential solutions reported by the interviewed organizations. General guideline inquiries for information required by this section are presented below.

A. From the perspective of your organizational responsibilities and interests, identify the water resource and related problems in this area.

B. Identify any perceived causes of these problems.

C. Identify any proposed solutions to these problems, including what would be required to implement these solutions.

3.10 Organizational Interrelations. The substance of this section will be designed to assess the network of responsibility and participation of all organizations in water and related land resource decision-making activities. Interrelations among the organizations identified in 3.05 will be developed on the basis of the partial list of suggested criteria below.

A. List of major organizational functions/tasks

1. For each function; to which of the other significant organizations does this organization have a reporting obligation?

2. With which of the other organizations does this organization maintain ongoing communication for the purpose of coordination in particular functions?

3. For each major function/task of this organization which other organizations have responsibility for the same function/task within the same jurisdictional boundaries, in whole or in part?

a. In law

b. In practice

B. Will participation by this organization in the planning study consist primarily of direct contact with the Corps, or of indirect relations with the Corps, through other organizations? (If primarily indirect, which organizations will mediate?)

3.11 The final part of the body of the report will be the Summary and Conclusions section. In addition to implied content, it will be designed so as to function as a separable document for distribution to those individuals or groups concerned only with the immediate overall results of the investigation. This section should be designed to not exceed 15 pages, justifications of assertions or judgements made.

3.12 Bibliography. The bibliography will present all secondary data sources utilized in the execution of this contract study. The bibliography will also contain references to source works supporting research design, methods, and data analysis for the purpose of documenting compliance with accepted practices in contemporary organizational research. The method of presentation will be in accord with that of professional research journals. Examples can be found in the publications specified in 2.06.

3.13 Appendices. The appendices will contain: 1) a copy of the interview form, 2) a coding document, 3) a methodological discussion, and, 4) official summaries of laws inventoried.

4. Contract Administration

4.01 A minimum of 4 checkpoint meetings will be held to direct study investigations and to maintain study progress. These 4 meetings will be scheduled for the following study milestones:

1. Following development by the Contractor of the study methodology, prior to initiation of field investigations;

2. Following initial field studies, to assess effectiveness of the survey instruments;

3. Following the conclusion of field investigations and intial data analysis, prior to report writeup; and

4. Review of the draft Contractor's report.

4.02 Work on this contract shall begin upon receipt of the contract, and all required work shall be concluded on or before 31 July 1980.

4.03 The Contractor will provide a memorandum of record for each coordination meeting which will be sent to the Contracting Officer for review and approval. The Contractor will fully discuss and provide appropriate documentation of all coordination efforts associated with outside parties as part of this work effort. This will include a monthly log of telephone calls, copies of correspondence and memorandums of meetings. This documentation will be forwarded monthly to the Contracting Officer along with a monthly progress report which will accompany his voucher for payment. This monthly summary will include a listing of tasks completed, reference to maintenance of the program schedule identified below, and estimated percentage of work completed. Complete justification will be necessary to support requests for reimbursement not in line with reported percentages of completed work.

## 5. Format and Materials Specifications

5.01 Text materials will be typed on bond paper, 8.5 inches by 11.0 inches, with a 1.5-inch margin on the left side, 1-inch margins on the top and right and 1.5-inch margin at the bottom.

5.02 Information will be presented in textual, tabular, and graphic forms, whichever is most appropriate, effective and advantageous to communicate the necessary information.

5.03 The title page of the report will carry an appropriate inscription indicating the source of funds used to conduct the work, the contract number, the name of the principal investigator, and the date.

5.04 All figures must be readily reproducible by standard xerographic equipment.

5.05 The Contractor will furnish the labor, supplies and equipment needed to complete the study and to produce the report on the reconnaissance as outlined in this scope of work.

5.06 The Contractor will submit 10 copies of a draft report. The Contractor will submit one original and 15 copies of the final report which will include appropriate revisions in response to the Contracting Officer's comments, within 30 days of receipt of those comments.

5.07 Neither the Contractor nor his/her representatives will release or publish any sketch, photograph, report, or other material of any nature obtained or prepared under this contract without specific written approval of the Contracting Officer.